PATTERNS OF FRIENDSHIP AND INTERACTION STYLE IN YOUNG CHILDREN

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DEDICATION and ACKNOWLEDGEMENTS

This thesis is dedicated to the memory of Margaret Manning who took the major role in supervising this research project from its original conception in 1978 until her death in 1982. Throughout that period Margaret provided inexhaustible amounts of guidance and encouragement whilst inspiring me with her creative but thoroughly empirical approach to the study of children. Her influence is felt throughout this study.

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I finally declare that the work presented in this thesis is entirely my own.

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ABSTRACT

A sample of pre-school children, ranging in age from 3:8 to 4:9, was observed in free play in a nursery group in order to determine the range of individual variation present in the patterns of friendships which individuals form with their peers. Three patterns of friendship were distinguished:- (i) The reciprocated best friendship pattern in which a strong special best friendship is seen to exist, mutually supported by the child and his partner, (ii) The unreciprocated best friendship pattern in which the child directs especially friendly behaviour at one particular peer but a strong friendship has not resulted and (iii) The pluralistic friendship pattern in which the child does not act preferentially towards any particular peer. 'Number of companions' was found to be a separate variable independent of this typology. Reciprocated best friendships were found to be associated with high levels of sophisticated social play between the partners and within such relationships there was evidence of advanced understanding of the nature of friendship. Friendship pattern type was not related to age or sex but appeared to represent an aspect of individual differences present amongst children at a similar stage of development. The sample members were also assigned to 'difficult' or 'well adjusted' interaction style groups in accordance with the distinction made in the interaction style models of Manning and Montagner and relationships were found between friendship pattern types and interaction styles. Only well adjusted children had reciprocated best friendships and, amongst the unreciprocated group, only the well adjusted children appeared to be aiming to create a close best friendship. Amongst the pluralistic children the well adjusted group were distinctly more active in social activities. These findings can best be interpreted in terms of Manning's theoretical assertion that well adjusted children are motivated towards engaging in reciprocal interaction with others whilst the peer interaction of difficult children is dominated by different, maladaptive social aims of a short term and self centred nature.

CHAPTER ONE

INTRODUCTION

A. Historical Background and Methodological Approaches

(i) Historical background of peer interaction research

Throughout the history of child psychology, peer interaction has been consistently ascribed an important role in the developmental process. Thus in 1933 Susan Isaacs wrote "Companionship in play is, from an early age, one of the greatest needs of little children, whatever aspect of their developing life one is considering".

From the turn of the last century the value of such early social experience, even for children of pre-school age, was being increasingly recognised and acted upon. The thriving nursery school movement, following the writings of educational theorists such as Froebel and Montessori, deliberately aimed to give children the opportunity to interact with peers, as well as to explore the physical world. This aspect of nursery education is still equally strongly emphasised in a recent report on pre-school provision in Scotland (S.E.D., 1971).

Given then, that the value of early social experience with peers has long been recognised, it is perhaps rather surprising to find that the topic of children's early peer interaction and friendship relations has received relatively little attention in terms of major programmes of research. Until a relatively recent revival, starting in the 1970's, the only period of sustained interest in early peer interaction was to be found in the 1930's, mostly work originating in America. Around this time a large number of empirical studies were published, using observational methods to assess the effects of gross variables on the social behaviour of young children with their peers.

This work was strongly influenced by the approaches of major European psychologists to more general questions of child development. Piaget (1932) closely studied the behaviour of children playing street games in his work on moral development, and Isaacs (1930, 1932, 1933) and Buhler (1933) were also observing children interacting

naturally with peers, in developing general theories of social development. In America Bridges (1933) also used similar techniques. Psychoanalytic theorists such as Isaacs and Anna Freud (1935) tended to emphasise elements of what they termed "naive egoism" in the peer interaction they saw, even although their observations often showed instances of co-operation, as their interpretations were strongly coloured by the psychoanalytic theories for which they sought support. The wave of American research, which was centred around an expanding establishment of child welfare institutes, aimed largely to describe the development of children's social behaviour in a relatively 'objective' manner i.e. without seeking to justify any prior theoretical framework.

The many studies produced in this period are reviewed by Smith and Connolly (1972) and by Renshaw (1981). A classic study of the period which shows a typical approach is the work of Parten (1932, 1933). Parten used a time sampling observational methodology to investigate the effects of gross variables such as age, sex, I.Q., and home environment on the type of play engaged in by preschool children and the size of groups formed. Thus it was shown that the older nursery children tended to engage in more social play and play in larger groups. Studies of this period did not generally concern themselves with the details of interaction patterns between children but rather sought correlations between gross variables across the whole group.

Smith and Connolly (1972) list five main shortcomings in the studies of that era. (1) A bias towards considering categories of behaviour considered desirable or undesirable by adults (2) Uncritical use of complex categories often defined in motivational terms (3) The lack of any sequence or cluster analysis (4) The lack of any inter-species perspective (5) Little interest in looking for explanations of behaviour in terms of underlying motivation and immediate environmental influences. To this list might be added one other - the failure to

consider individual differences in the patterning of social behaviour, a failing which is related to their lack of any models of underlying motivation.

A few studies of this period did look specifically at friendship among young children, but these tended to be limited to looking at the effects of gross variables on friendship choice. Thus Challman (1932) and Hagman (1933) looked at the effects of factors such as sex, class and neighbourhood on the child's choice of playmates. Questions about the processes or functions of friendships were not addressed.

Dissatisfaction was expressed with this approach to the study of friendships at the time. In one of the most interesting papers of the period, Potashin (1946) suggested that more emphasis should be put on studying the content and qualities of early friendships. She goes on to make an important distinction between studying the "limiting factors" of friendship, that is those factors such as degree of similarity in age, background etc. which might be thought to limit the formation of friendships between individuals, and studying the nature and dynamics of friendship. In advocating a move towards the latter approach to children's friendships, Potashin indicated a specific area of research which she felt should be pursued -

"We have shown two patterns (of association with friends) and there may be more:- the closed clique structure and the wider spreading variety with expanding contracts. The question of which is the healthier form would have to be studied in terms of the personalities of the children concerned".

The idea of looking closely at how different individuals' pattern their relationships with peers and relating these differences to other aspects of their behaviour was not taken up at the time. It is however, very closely matched by the structure of the research reported in this thesis.

(ii) Approaches to the Measurement of group social structure

Renshaw (1981) attributes the decline of research interest in peer interaction to a combination of two major factors - the disruption of child psychology caused by re-deployment of psychologists in the war, and a subsequent growth of interest in the mother and immediate family as socializing agents.

One development of that period, which did continue to produce research interest in peer groups was the technique of sociometry. Pioneered by Moreno (1934) as a method of measuring the social structure of a group, sociometry was frequently applied to groups of children (e.g. Moreno, 1942, Budden 1943, Koch 1933, Biehler 1954). This method, in its original form, uses the stated friendship choices of children to build up a pattern of the group's social relations and thus identify individuals who may be particularly popular (i.e. those who are chosen often by others: sociometric 'stars'), others who are neglected (i.e. those who receive few choices but give many) and yet others who are isolated (few choices given or received).

Many workers have used sociometric data collected in this way to construct a popularity hierarchy, thus creating a variable known as sociometric status. This variable has then been used as a linear variable indicating success in the social group or popularity and researchers have then sought to discover factors which distinguish between children of high and low sociometric status (McCandless and Marshall, 1957, Marshall and McCandless, 1957, Moore and Updegraff, 1964, Hartup, Glazer and Charlesworth, 1967).

However, although sociometric techniques used in that way can be useful in identifying children of extreme popularity or unpopularity, it must not be supposed that a linear hierarchy of social status is an accurate representation of the social relations existing amongst a group of children. Rather the linear model

obscures a complex network of relationships. In its more refined forms the sociometric technique can be used to develop a picture of friendship networks involving loosely organised groups and tight exclusive cliques. Such a sociometric map can be constructed on the basis of various types of interview choice data (Nash, 1973, Hargreaves, 1972, Alba 1972, Hallinan 1981). A similar type of structural description of the group can be produced on the basis of observational data relating to patterns of association (Clark, Wyon and Richards, 1969) or the distribution of affiliative acts (Strayer, 1980). The variety of the different types of groupings thus identified seems to call for research which examines the nature of relationships within different friendship patterns and which then might lead on to produce explanations of how individuals come to adopt different types of pattern. The sociometric technique provides a 'surface structure' description of the group but it is in no sense an explanatory framework. Theoretical models of the individual's motivation in social interaction must be invoked to explain how the observed sociometric structure has come to exist.

Another type of description which has been applied in the description of the social structure of peer groups is the dominance hierarchy. McGrew (1969), and Smith (1974) showed that a reasonably stable pecking order could be established in groups of pre-school children, if the children are ordered with respect to their success or failure in conflict situations with each of their peers. A dominance hierarchy thus established can then be useful in predicting the outcomes of future confrontations. Although Omark, Omark and Edelman (1975) showed that preschoolers tend to overrate their own position in such a hierarchy, Sluckin and Smith (1977) showed that some of the older children in a nursery group can quite accurately perceive the relative positions of others, although in doing so they seem to be giving more attention to the initiation of conflict encounters rather than

success in winning them.

The dominance hierarchy, however, appears only to be a meaningful description of social structure in the context of aggressive interaction - it does not appear to have any clear relationship with sociometric measures of friendship relations in the same group. Strayer (1980) charted the social structures of 3 'normal' nursery groups on the basis of affiliative acts, and found them to be unrelated to dominance hierarchies derived for the same groups.

(iii) The Ethological Approach

Whilst the sociometric methodology was derived from a sociological approach to group structure, the ethological approach was initially an attempt to directly apply the methods of animal behaviour research to the study of young children. After making an impact in the study of mother-child interactions (Bowlby, 1969), ethological methods were soon applied in peer interaction research.

Ethologists stress the importance of a thorough descriptive phase in the study of the behaviour of any species. Extremely fine grained physicalistic categories of observation are used and these should not at first be defined in motivational or functional terms. Only later can categories be identified in those terms after a full analysis of the contexts in which they occur, their associations with other categories and consideration of their function in terms of ecological adaptiveness. Thus the first task of human ethologists was seen to be that of building an 'ethogram' of the human species, describing the full behavioural repertoire in terms of behavioural categories or groups of categories derived through ethological techniques (Tinbergen, 1972). This thorough descriptive phase would generate hyptheses as it proceeded (Blurton-Jones, 1972 a). Working on this basis Blurton-Jones (1972 b) produced detailed category systems of behaviours occuring in peer interaction at nursery schools and then sought factors amongst their intercorrelations. He thus, for example, identified a factor of 'rough and tumble' play drawing together

categories such as wrestle, run, jump and laugh.

Ethological methods were also used to study specific types of interaction occurring in the nursery. Thus McGrew (1972) analysed the behaviour of newcomers to the nursery and their progress in becoming integrated. Other studies compared the social behaviour of normal to that of seriously disturbed children (Leach, 1972, Tinbergen and Tinbergen, 1972).

The utility of the 'pure' or most rigorous ethological approach is limited however. Smith and Connolly (1972) pointed out the impracticality of description in terms of physicalistic categories in many situations and in their own work they used more complex categories implying motivation, such as 'try to keep toy' or 'co-operate'. Other observational studies have also used category systems relating to the intentions of the child, interpreted with reference to the situation and reactions of others (e.g. Manning et al. (1978). Consequently whilst ethological methods are perhaps only rarely applied in the study of children's peer interaction in their most rigorous form, they have nonetheless been widely influential in encouraging the detailed observation of 'naturally occurring' behaviour and the careful consideration of behavioural categories used.

From their initial interest in the description of behaviours observed in peer interaction, ethologists have tended to move on to approach more specific theoretical issues. Thus individual differences in social behaviour have been investigated (Montagner, 1978), Manning et al., 1978, Manning & Herrmann, 1981) and the effects of varying environments on the behaviour of nursery groups have been measured (Smith and Connolly, 1980.

One trend apparent in recent ethological has been towards uncovering greater complexity in the structure of behaviour. Thus whilst Smith and Connolly (1972) and Smith (1973) found a general dimension of social maturity involving development with age through stages of solitary, parallel and group play, Roper and Hinde (1978) have subsequently found dimensions which seem to

be a breakdown of the social maturity dimension and which are not consistently related to age. Solitary play was found to be unrelated to social interactivity (roughly a parallel to social group play dimension). It is also notable that Roper and Hinde found consistent individual differences (across situations) in the extent of social interaction and communication with others, unrelated to age. This finding raises the question of behavioural styles in pre-schoolers which is approached more directly by Manning et al. (1978), Manning and Herrmann (1981) and Montagner (1978), and which will be explored more fully later in this chapter.

An ethological approach has also been applied to theoretical questions about the function of social fantasy play amongst pre-school peers. Thus Smith (1977) initially observed and categorised the types of play occurring in pre-school groups, classifying play episodes according to their content and structual complexity. It was thus shown that two forms of fantasy play can be distinguished, rough and tumble fantasy play favoured by boys and involving larger groups, and fantasy play involving object manipulation which occurs in smaller groups and is favoured by girls. In subsequent experimental studies which use the above system of play classification for observational assessment, Smith and his co-workers proceeded to follow up the earlier assertion of Smilansky (1968) that fantasy play has an important role in general intellectual and social development and that encouraging fantasy play in 'disadvantaged' children (who tend normally to show lower levels of it) could have important benefits in these areas. Thus Smith and Syddall (1978) and Smith Dalgleish and Herzmark (1981) compared the effects of fantasy play and social skills tutoring. Their findings showed that a general tutor stimulation effect could account for all the gains on cognitive measures found, although fantasy play tutoring did have specific benefits for social

participation. An important role for fantasy play in general intellectual development is not therefore indicated.

The above sequence of studies demonstrates how the ethological approach can profitably be used in integration with experimental approaches once the relevant behaviours have been described and theoretical questions identified. Such methodological integration is increasingly taking place - where it does occur the increased emphasis on observation and description brought by the ethological approach helps provide a better understanding of the nature of the behaviours which one is trying to explain. To that extent the ethological approach should influence the design of any study of pre-school social behaviour.

B Theoretical Models of Social Development

Although much of the peer interaction literature does not openly address itself to theories of social development, nonetheless three major types of theoretical model can be identified which all have differing implications for the nature of friendship relations in nursery age children. These will now be discussed in terms of the relevant peer interaction research which they have generated or influenced and the findings which bear significantly upon the validity of their arguments. The three models concerned are (i) Social-learning theory (ii) The cognitive/developmental model and (iii) the drive-to-sociability model.

(i) Social-learning theory

The social-learning approach to peer interaction and friendship relations is derived from social-learning theory, a general theory of social development developed as a behaviourist account of how children become social beings. In line with the fundamental principles of behaviourism, social learning theory denies any importance to genetic or developmental preformation of behaviour patterns. Rather it proposes that the acquisition of social competence comes about through the cumulative effects of countless social-learning experiences, with the motives which ultimately underlie the learning process being the

'primary' motives of physical need, hunger, thirst etc. Through increasingly complex chains of association between the actions of other persons and the experience of reinforcement (i.e. reduction of primary drives), the child comes to acquire increasingly complex tactics for interacting with others and comes to seek out such interaction. The child's social learning soon comes to be mediated by 'secondary' rewards such as goods, services, money, information, status and love (Foa and Foa, 1974).

In studies of early peer interaction, the influence of social-learning theory was reflected in a strong emphasis on power and influence over others. In this context it is a clear implication of social-learning theory that all children should be fundamentally concerned with maximising their ability to make others do as they wish. Peers are ultimately only considered important to the child in so far as they can provide rewards for him/her, with status being one of the major secondary 'rewards' proposed.

In applying this approach attention was focused on the social status hierarchy as a way of measuring success in achieving social power, making the assumption that high status children receive the greatest amount of social rewards from others. All children are assumed to be motivated towards increasing their status, and furthermore it is assumed that this motivation is one of the most important in determining an individual's actions towards his peers.

A major consequence of this approach is a tendency to disregard individual differences other than those which might be seen to relate to the child's position on a linear status hierarchy. Children are treated as a homogeneous group with the same motives directing their social interaction, but being more or less successful in achieving their aims. In studies of this genre, sociometric status has been correlated with variables such as age, sex, nurturance giving and dependency (Moore and Updegraff 1964, Marshall and McCandless 1957, McCandless, Bilou and

Bennett, 1961). Other studies looked specifically at the amount of 'reinforcement' given by children of high and low status (Hartup, Glazer and Charlesworth, 1967, Charlesworth and Hartup 1967). These studies showed that it was possible to show some general relationships between sociometric status and behaviour (e.g. low status children tend to give much 'negative' reinforcement). They did not, however, show that the social relations of pre-school children are best described by a linear status model on which the individual's position is dependent on the amount of reinforcement he dispenses to others.

Indeed the more refined methods of describing social structure which show groupings and 'cliques' of children who associate regularly together (e.g. Hallinan 1981) have shown the situation to be more complex. This complexity is awkward to deal with in social-learning terms as it suggests that the approach of individuals to making relations with their peers may not be best explained in terms of a common motivation to climb the status ladder thus becoming more and more popular. The varying types of groupings observed may reflect varying aims and motives amongst their constituent members. Nonetheless some researchers in that tradition continue to gloss over the range of individual variability. Corsaro (1981) writes

"most of the children in each group play more often with some children than with others but do not concentrate their social contacts around one or two playmates"

and he goes on to suggest that children may develop stable relationships with several other playmates as a way of "maximising their probability of successful access". Thus having reduced the range of friendship patterns present in the group to a norm or average pattern he proceeds to explain the 'average' pattern in terms broad enough to be generally applicable to all children. The variation of form and function amongst individual's patterns of relationships is not addressed.

Exponents of social-learning theory have tended not to recognise the existence of 'best' friendships qualitatively different from other relationships. Rather they assume

that all children would like as many friends as possibl, 'friends' being those who accept rather than reject them. Thus the 'function' of friendship is not explained in terms of the quality of interaction between friends but in terms of its tactical advantages in gaining access to groups.

A significant program of contemporary research into early peer interaction which is clearly based on the social-learning approach, is the work of Asher and his co-workers. (Asher, Oden and Gottman (1977), Oden and Asher (1977), Asher (1978), Asher et al. (1979), Asher and Renshaw (1981). They aimed to improve the social status of isolated children through direct intervention. On the basis of a social-learning explanation of how these children came to be socially isolated (ie. that the sort of reinforcement these children had encountered in association with social skills had been abnormal and caused them to mis-learn them), they proposed that the problems experienced by these children might be greatly reduced or eliminated by a period of explicit tuition in the positive social skills which are displayed by socially successful children. A variety of social skills training programmes were implemented by Asher (op. cit.) and by others (O'Connor 1969, 1972), (Gottman, Gonso and Rasmussen, 1975, Gottman, Gonso and Schuler 1976), using shaping, modelling and coaching techniques.

Most of these studies have failed, however, to produce any long term effects. Thus O'Connor (1972) found his shaping programme to produce no long term gains and Gottman (1977) found no long term effects for modelling procedures (O'Connor (1972) claimed success for this modelling procedure), when replicating O'Connor's study with added controls. Putallaz and Gottman (1981) report that none of the techniques used to date have produced consistent lasting success. Once the experimental conditions cease, behaviour tends to drop back to pre-intervention levels. Thus Oden and Asher

(1977) write "the children's behaviour tends to return to baseline levels once reinforcement has been terminated."

Following the logic of social-learning theory, a period of explicit reinforcement of positive social behaviours should greatly increase their use by the child and, once the child uses them in interaction with peers, the positive reinforcement received as a result should maintain and consolidate their position in the behavioural repertoire. The failure of these various programmes to achieve lasting effects suggests that the social-learning explanation is not adequate to account for the social behaviour of these 'isolates'. Their maladaptive social behaviours seem likely to be the result of factors other than the child's perception of reinforcement contingencies in peer interaction contexts.

Some more successful social skills training programmes have appeared in the literature however (Oden and Asher 1977, Ladd 1981). Ladd (1981) found sustained improvements in peer acceptance over a one year follow up period, after coaching third grade children in specific social skills. It has been suggested that the success of these more effective programmes may be accounted for by the attention which they have paid to children's goals in social interaction as well as to their knowledge of strategies (Renshaw and Asher, 1983). Indeed the overall pattern of results which the social skills training literature presents might be interpreted as evidence of a need to go beyond the social-learning model which states that children all have the same aims and goals in interacting with peers, but differ in their knowledge of various strategies and their competence in performing them. Differences between children in the aims and goals of their social behaviours should be sought - varying social skill repertoires might then be seen as the results of individuals tending only to learn and use those strategies which they see as relevant to their aims.

The broader implications which the social-learning approach has for the nature of children's friendships can be summarised as follows. The relationships of children can

best be characterised in terms of exchanges of rewards such as goods, status, services and information therefore no child should desire or maintain a relationship in which these rewards are not forthcoming from the other partner. The ability of a child to successfully make friendships is dependent on his social skills which are in turn only dependent on the child's previous experience of appropriate social-learning situations with peers. One of the most important benefits which a friendship can provide for a child is easier access to groups of which the friend is a member - thus the important characteristics of friendships lie not in the quality of interaction which might result between the child and his friend but in the access which the friend can provide to a larger social network. The most socially competent individuals in any group should tend therefore to have wide ranging patterns of friendship with others - this being the case the most sophisticated social activities will also tend to occur amongst individual's with wide ranging patterns of association.

(ii) The Cognitive/Developmental Approach

Considerable interest has recently arisen in the emerging field of social cognition research (Flavell and Ross, 1981). The basic theoretical assertion which draws together the work of this genre is that cognitive factors have a major controlling influence over the course of social development. Thus it is proposed that the social relationships of the young child are determined by the child's 'limited' capacity to perceive and understand others and furthermore that these social-cognitive capacities are a facet of the child's general cognitive development and thus develop in harmony with them. (Younniss, 1978).

Stage models have consequently been produced, charting a framework for the development of the child's conception of friendship. The most developed of these models is provided by Selman (1976, 1981). Selman's scheme is based on a Piagetian model applied to the analysis of interview material collected from children of various age levels, and it consists of five stages, ranging from stages 0 to 4. At stage 0, (age range 3 to 6 years) the children are said to see friends as momentary physicalistic companions, a friend is simply whoever one is playing with at the time. At stage 1 (age range 4 to 9 years) children see friends as peers who provide assistance, but are not aware of any reciprocal requirement to provide help in return. At stage 2 (age range 6 to 12 years), the child conceives of 'fair weather' co-operation - there is mutual give and take in the relationship but it breaks down easily if conflict arises. At stage 3 (age range 9 to 15 years) the child conceives of an intimate and mutually shared relationship and at stage 4 (age range 12 years on) children consider friendship as autonomous interdependent relationships.

Bigelow and La Gaipa (1980) produced another developmental framework based on children's descriptions of what they consider to be the most important characteristics of friends. They found three sequentially appear-

ing 'stages' of description. The dimensions within each stage, although developmentally ordered, tend to appear together, but once a new stage is attained dimensions of the previous stage no longer occur. Stage 1 has three dimensions (1) Common activities - friends should like to play the same things (2) Evaluation - friend is someone the child likes and (3) Propinquity - a friend is someone whose company the child seeks out. Stage 2 has only one dimension (4) Character admiration - the friend is someone whose personality characteristics the child admires. Stage 3 has five dimensions: (5) Acceptance - the friend must be someone who accepts the child (6) Loyalty and Commitment, (7) Genuiness, (8) Common interests and (9) Intimacy potential. Bigelow and La Gaipa (1980) do not give age bands for these stages but they suggest that they are roughly equivalent to (and dependent on) the Piagetian stages of pre-operational, concrete operational and formal operational thought respectively. Their sample did not include any children under the age of six, so it is not clear how many of the stage 1 dimensions they would expect the pre-school child to have.

Within the process of social cognitive development two related strands are commonly discussed. One is the development of the child's perception and conceptualisation of other persons (Brooks-Gunn & Lewis, 1978) and thus is essentially concerned with social knowledge. Rubin (1980) suggests that pre-school children have no concept of others having enduring 'personalities' but gradually the child comes to have more and more sophisticated concepts of other persons as autonomous individuals with characteristics equivalent to but different from his/her own. Sullivan (1953) also argued that the development of increasingly sophisticated models of others is central to the child's development of friendship. The other strand concerns the development of role-taking skills or the ability to appreciate the perspective of another different from ones own.

Role-taking has been seen by many writers as the central construct in social cognition (Shantz, 1975, Light 1979, Higgins 1981). It has been suggested that as the child loses his 'egocentricity' in the pre-operational stage of conitive development (Piaget, 1932) he/she becomes increasingly more able to construct or conceive of views different from his/her own. This role-taking ability develops earliest in terms of literal views of objects in space and later comes to encompass understanding other's intentions and emotions (Higgins, 1981). At the pre-school stage egocentricsm is still said to dominate the child's social interaction rendering him/her unable to take account of the perspectives of others (Piaget and Inhelder, 1956).

Recently many writers have thrown doubt on the Piagetian view of the pre-school child's egocentricity, providing evidence to suggest that when these skills are embedded in an interpersonal context the pre-school child is seen to be much more proficient in their use (Borke 1971, 1972, Hughes 1978, Donaldson 1978). It has thus been argued that the child's social cognition is more advanced if viewed in its social context. In the case of friendship relations this point has been made by Rubin and Pepler (1980), who gathered together evidence from studies of actual peer interaction amongst children and compared the conceptions of friendship implied by their behaviour to Selman's model. In doing so they attempt to forge a link between social-cognitive theory and natralistic observation which has so far sadly been lacking (Damon, 1981). Rubin and Pepler suggest a downward revision of Selman's age bands, having concluded that most pre-school children are operating at the stage 1 level and that many children under the age of 3 have friendships at the stage zero level (see Vandell and Mueller, 1980).

So whilst the cognitive/developmental models of friendship development clearly imply that the friendships of pre-school children are transcient and unenduring partnerships of convenience, it seems probable that this

description is a significant underestimate of their social relations in practice. Therefore in the context of an observational study of pre-school friendships attention should be paid to evidence which might indicate more advanced levels of friendship, evidence which might show appreciation of the other's perspective or even co-ordination of the child's own perspective with that of his friend.

(iii) The Drive to Sociability approach

The approach I have termed the drive to sociability approach is represented by Trevarthen's theory of inter-subjectivity (Trevarthen, 1979). In contrast to the cognitive and social-learning theories of development, Trevarthen asserts that children have an innate motivation and capacity for the development of intimate relationships and co-operative understanding with other people. In formulating this theory he was greatly influenced by his own research which demonstrates how the infant plays an active role in controlling interaction with the mother and that a strong motivational system is bound up in achieving appropriate early interaction (Trevarthen, 1974). In common with the earlier writings of Mead (1934) and Macmurray (1957), Trevarthen sees the development of interpersonal awareness, or intersubjectivity, as a prime factor in driving the child's overall intellectual development. Other writers have also suggested that the newborn child is pre-adapted to interact socially (Ainsworth, Bell and Stayton, 1974). Trevarthen (1979), in agreement with Damon (1981), argues that the essential feature of social interaction, as distinct from behaviour in the world of physical objects, is that from very early on, intentions are attributed to events perceived by the individual in that context.

Manning draws on Trevarthen's theory in constructing a model of the factors controlling individual differences in peer interaction style amongst pre-school children (Manning & Herrmann, 1981). She suggests that the same motivational

system is operative in peer interaction such that the child strives to interact and finds positive reciprocal interaction with others inherently rewarding. Manning's model also suggests that in cases where the child's interaction with the mother has not been satisfactorily fulfilling the child's needs, the frustration of this strong motivational system is carried over into the peer context and results in the child persistently displaying inappropriate peer behaviours of particular types which disrupt his/her peer relationships or peer competence.

This model is empirically based on Manning's long and detailed programme of research into the interaction styles of young children, initially with particular reference to aggressive behaviour and later in terms of the whole range of their social behaviours (Manning, Heron and Marshall, 1978, Manning and Herrmann, 1981). Three different 'styles of interaction' were identified accounting for the whole range of individuals. (This work is described in more detail in Chapter 5). Of these three 'types' one was considered well-adjusted whilst the other two were considered to show 'difficult' characteristics in their behaviour (particularly inappropriate aggression). These behavioural styles were found to be relatively stable characteristics of individuals through nursery and into early primary school.

Manning compared these three groups, named 'well-adjusted','aggressive', and 'dependent', on aspects of the mother-child relationship (Manning et al. 1978). Whilst the well adjusted children tended to have warm relationships with their mothers typified by much conversation and joking, the mother-child relationships of the 'aggressive' children were typified by manipulation and over-controlling by the mother, insistence on rules and high degree of politeness and manners. The relationships of dependent children with their mothers often showed clear signs of emotional coldness and lack of affection.

Manning's model considers the 'well-adjusted' children to be exercising their innate desire to communicate and co-operate with other children. The dominant aims of the 'aggressive' and 'dependent' children are seen to be different. The behaviour of the 'aggressive' child, typified by a need to be 'boss' and control other children with no regard for their expressed desires or reactions (often by force), is seen to be the result of a frustrated need for reciprocal interaction with others. As the child's relationship with an 'overcontrolling' mother tends to ignore or contradict his/her contribution to any interaction he feels an overwhelming need to demonstrate in other contexts that his will is worthy of respect and can have an effect on joint interaction. The 'dependent' child is typified by an eagerness to please others and attract approving attention from them, but an inability to take the initiative in creating episodes of interaction with others - thus he/she tends to hover around other groups and is often perceived as a nuisance by them. Often the dependent child does interfere with or harrass members of the group apparently in order to gain attention. This style of behaviour is said to be related to the lack of a secure affectional bond in the child's relationship with the mother. A secure affectional or 'attachment' bond has been suggested to be a fundamental biological 'need' of the child on the basis of a large body of research (Bowlby, 1969, 1973, Ainsworth, 1967, Ainsworth et al. 1972). In the absence of a secure attachment bond the 'dependent' child is said to feel a strong need to repeatedly prove that he is 'likeable' but also a strong underlying hostility and suspicion of others on account of his apparent rejection. The 'dependent' behavioural style is said to reflect the influence of these factors. Manning et al. (1978) found that siblings of 'dependent's' were often 'more preferred' by their mother.

The results of another programme of research into the interaction styles of pre-school children, carried

out by Montagner in France, provide support for Manning's model. Montagner (1978) carried out a very detailed ethological analysis of the non-verbal social interaction occurring amongst peers in the nursery group. He identified seven stable 'styles of interaction' and these have been shown to be clearly equatable with Manning's three styles if similar categories are fused and the rare 'totally withdrawn' category is set aside (Sluckin, 1981). In particular Montagner's 'dominant-aggressive' style is clearly equivalent to Manning's 'aggressive'. Montagner (1978) has shown furthermore that his dominant-aggressives tend to have disturbed home relationships often with considerable aggression being received from the mother. In agreement with the views of Manning, he sees the child's style of peer interaction as the result of the disturbed relationships at home and indeed he has found that alterations in the mother-child relationship can affect the child's peer interaction over the very short term, as well as over a longer time scale (Montagner et al., 1982).

Several other studies have also recently shown an association between the quality of a child's relationships with the mother and general peer competence measures. Thus Lieberman (1977) found that 'security of attachment' with the mother correlated positively with the amount of reciprocal interaction in which the child engaged and negatively with the amount of negative behaviour displayed. Easterbrooks and Lamb (1979) found significant differences in the peer competence of 18 month old infants assigned to different sub-groups within the 'securely attached' category - children assigned to those sub-groups which have a greater tendency to seek proximity with the mother also tended to show less frequent and less sophisticated interaction when introduced toa strange peer. Waters, Wippman and Sroufe (1979) revealed more distal associations - they found that children considered 'securely attached' at age 18 months showed a higher level of peer competence across a wide range of measures two

years later. They also had found differences in non-verbal peer-competence between the 'securely' and 'anxiously' attached infants at age 18 months. Thus a poor quality of attachment relationship with the mother is again seen to have widespread and enduring effects on the child's social behaviour with peers. Liebermann (1977) also found evidence of a factor other than attachment - she found that restrictive maternal attitudes to the child's expression of aggression and freedom to explore were related to poorer peer competence. These effects could be interpreted as reflecting the relationship proposed by Manning between an 'over-controlling' mother and an 'aggressive' style of behaviour.

Overall then, there is a growing body of evidence indicating that the child's relationship with the mother has a major role in determining the nature of his/her interaction and social relations with peers. Where home relationships are bad the child's peer behaviour does not simply show learning of these same 'bad' strategies but rather seems to reflect the frustration and distortion of strong motivational system which operates across all interpersonal contexts. (Manning & Herrmann 1981). The styles of behaviour thus produced are enduring and do not disappear as the mother's control over the child's peer experience wanes through the nursery and into primary school. Manning's model, which explains the behaviour of 'difficult' children in terms of their home relationships being deficient in either reciprocal communication or attachment, provides a good framework within which to understand these relationships. It also has implications for the nature of friendships in pre-school children.

One clear implication of the model is that 'difficult' children should on balance be expected to show rather less sophisticated friendships than their well-adjusted peers. Both Manning and Montagner have shown that stable behavioural styles can be identified and that some of these are considerably less 'well adjusted' or 'socially

competent' than others. According to Manning's model 'difficult' children have different and maladaptive social aims whilst 'well-adjusted' children seek to engage in reciprocal interaction for its own sake. Therefore where close friendships appear one would expect them to be found amongst well-adjusted rather than difficult children. A further implication of the model is that the friendships of well-adjusted children should be characterised by a high level of reciprocal co-operation.

(iv) Summary

The implications of each theoretical approach for the peer relationships of pre-school children can be summarised as follows.

Social-learning theory emphasises the importance of having many friends (thus gaining popularity and status), rather than having a few close friends. Thus the most socially competent individuals will develop broad, wide-ranging, networks of friends and the sophisticated interaction will be centred around these popular children. Relationships should best be described in terms of exchanges of rewards and should therefore be transient and unstable - relationships should not be sought out or maintained where the rewards received are poor or non-existent.

Social-cognitive models of the development of children friendships imply that the friendships of pre-school children are transitory partnerships of convenience, which are not based on mutual co-operation but which at best involve joint activity in which each is of help to the other without actively seeking to accommodate his behaviour to him/her. The child's social behaviour is dominated by an egocentric perspective.

The drive-to-sociability approach proposes that pre-school children are motivated, independently of external rewards, towards developing reciprocal interaction with peers and one might therefore expect that friendships are developed as contexts within which

reciprocal interaction and co-operation is most fully developed. 'Difficult' children, however, would not be expected to show such relationships as their aims and motives in peer interaction have been distorted by poor relationships at home. Differences should therefore be observed between the friendship patterns of 'difficult' and 'well-adjusted' children reflecting these factors.

These three theoretical models offer different predictions about the ways in which individuals might be expected to pattern their social relationships in the pre-school. The social cognitive model clearly implies that strong best friendships should not be evident in the pre-school as the child's egocentricity would render the development of a lasting reciprocal relationship impossible. Neither the motivation nor the ability to create such friendships should be present. It is consequently implied that pre-schoolers will associate fairly randomly with a range of others consisting, presumably, of those who generally engage in the same sorts of activity. Social-learning theory also predicts that strong friendships should be rare amongst pre-schoolers - it proposes that the optimum pattern involves a number of equivalent friends, preferably of high sociometric status. Thus the most socially competent individuals should have wideranging friendship patterns amongst themselves. Strong associations with a particular friend are not ruled out but a high level of exchange of appropriate rewards would be necessary to produce any motivation towards the development or maintenance of such a relationship. The drive to sociability approach, in contrast to the previous two, would predict the occurrence of strong associations if relationships of this sort can provide a better context for the development of reciprocal interaction and co-operation. Of course reciprocal interaction may also be plentifully available within wide ranging friendship patterns, particularly for popular children, nonetheless close best friendships would seem likely to be worthwhile in those terms and so might be developed by some children.

This prediction only applied to well-adjusted children however - difficult children are said to have abnormal aims and motives dominating their peer interaction. These abnormal aims and motives should also be reflected in their relationships and would presumably militate against stable close friendships.

However, whilst competing predictions have been derived from the three theoretical approaches discussed above, it cannot be assumed that a full explanation of children's early friendships will necessarily be drawn from one and only one of these general accounts of social development. Aspects of all three might be included in varying degrees. Thus, whilst it might be found that individual differences in children's friendship patterns do not appear to be determined by restricted social cognition to the extent predicted by social-cognitive models, nonetheless the preschool child's social cognitive ability will remain a relevant factor, although our estimates of the preschooler's cognition in real-life inter-personal situations might be revised. Similarly, whilst the emphasis that researchers in the social learning tradition have put on children's mastery of social skills as determinants of the nature of their peer relationship patterns might not prove to be justified, nonetheless competence in social skills might still be a factor of some relevance. Factors such as the level of the child's social cognition, or his/her competence in terms of social skills, could prove to be limiting factors which act to restrict the range of goals which the child will pursue in forming peer relationships without directly determining which of these alternatives will be pursued. That being the case, other factors, such as the variation in social aims proposed by Manning, might have a major influence on the form of friendship pattern adopted.

What is primarily being tested in this research project is the extent to which these differing theoretical frameworks can help us explain the nature and variety of friendship patterns found in a particular group of children. In the light of the results obtained, the varying contributions which the factors stressed by each of the three theoretical

models can make will be assessed and their adequacy as frameworks for understanding general social development will consequently be considered. The implications of these findings for the validity of certain contrasting assertions which underlie these theoretical positions will be considered at that stage. This study was not primarily designed as a testing ground on which to compare theories of social development, however; rather it looks to these theories for the contributions which they can make towards explaining a phenomenon of primary interest, namely the friendships of preschool children.

C. Patterns of Friendship - previous directly relevant research and the design of this study.

To date very little direct attention has been paid to the description of how normal children pattern their relationships with others. Whilst considerable attention was given to describing the overall group structure of children's groups few researchers have considered how individuals organise their friendships within the group.

One study which has focused directly on different types of friendship pattern is that of Waldrop and Halverson (1975). They made a distiction between two types of friendship pattern, the 'intensive' pattern in which the child concentrates on one intense or close friendship and has few other friends, and the 'extensive' pattern in which the child has many relatively shallow friendships of which none are particularly special. These two apparently opposite patterns have been suggested a number of times as the end points of a salient dimension of children's relationship patterning (Potashin, 1946, Connolly and Smith, 1980, Hartup 1978, Corsaro, 1981) although not directly investigated. Waldrop and Halverson showed that at age $7\frac{1}{2}$ ' intensive' friendship patterns tended to be associated with high sociability in girls, whilst extensive patterns tended to be associated with sociability in boys. Bell et al (1971) however, found no such difference in an earlier observational study of the same sample of children at pre-school age, so this sex difference in friendship pattern may only appear around the early primary school years. Maccoby and Jacklin (1974) suggest that this is probably the case in their review of the literature relating to sex differences in social behaviour. Indeed Clark Wyon and Richards (1969) found some evidence that boys had more'intensive' relationships than girls in the pre-school. This finding only emerged however in one of the two closely equivalent nursery groups which they studied.

Foot, Chapman and Smith (1980), point out that Waldrop and Halverson confuse the 'depth' of friendship with

range of friendship in their 'intensive'/'extensive' dimension, assuming depth and range to be negatively correlated. Other writers also tend to make this assumption which has not yet been put to the test. A fuller description of friendship patterns should take these two variables into account individually.

A further factor which should also be considered in a more thorough description of friendship patterns is the reciprocity of relationships. Mannarino (1976, 1980) stresses the importance of distinguishing between reciprocated and unreciprocated friendships, as these have different implications for the child. One would expect to find that close 'best' friendships would be clearly reciprocated by both members but other children may conceivably have unreciprocated 'best' friendships in the sense that they direct especially friendly behaviour towards a particular peer whilst receiving little in return. This friendship pattern may be difficult to detect since a strong relationship will not exist between the children concerned but signs should nonetheless be present.

Alternative models of individuals' peer relations have been derived from studies using the sociometric approach. In particular, two main models have been proposed, both based on integration of measures of the positive and negative sociometric choices received by an individual from the members of his group - these are the models of Gronlund (1959) and Peery (1979).

Gronlund's model identifies four types of child: 1. 'stars' (receive many positive choices and few negative); 2. 'controversial' children (receive many positive and many negative choices); 3. 'rejected' children (few positive and many negative choices received); and 4. 'neglected' children (receive few positive or negative choices). This model thus represents the four possible types which can potentially arise if one treats positive and negative choices received as independent variables and dichotomously categorises each child's scores on these variables as being few or many.

Peery's alternative model relies on two different combinations of the number of positive choices received (called acceptance scores) and the number of negative choices received (rejection scores). For each of the children social preference scores are derived by subtracting rejection scores from acceptance scores - this indicates whether the child tends to be accepted or rejected on balance. Social impact scores are then derived by adding together each child's acceptance and rejection scores - this score therefore simply measures the number of times the child was referred to by his peers, i.e. his visibility or significance to others. On the basis of children's social preference and social impact scores, Peery then assigns them to four groups, in a similar manner to Gronlund. Thus the categories are: 1. 'popular' (positive social preference and high social impact); 2. 'rejected' (negative social preference and high impact); 3. 'amiable' (positive social preference and low impact); and 4. 'isolated' (negative social preference and low impact).

However, both Gronlund's and Peery's models are based on the analysis of positive and negative sociometric choice data gained from populations of elementary school children approaching middle childhood, and a number of major problems arise if one seeks to relate them to the friendship relations of preschool children in their naturalistic context.

Hymel (1983) has reviewed the literature relevant to the use of sociometric techniques with preschool children. She draws attention to two major problems of relevance here. Firstly, Hymel highlights the high unreliability of sociometric choice data from preschool children, particularly with regard to negative choices. Indeed she concludes that children of that age group probably do not understand the concept of 'disliking another child, an interpretation in accord with my own experience of asking such questions of preschoolers. If this is the case, then neither Gronlund's nor Peery's model can be appropriate descriptions of preschoolers peer relations - at best one is left with a simple index of 'popularity' based on the children's acceptance scores

(positive choices received). Secondly Hymel points out that the models of Gronlund and Peery are not supported by the evidence relating to concurrent validity. There is no evidence to suggest that their various categories of children show distinctive or differing patterns of social behaviour in preschool groups. Indeed in one study which did use a status measure combining acceptance and rejection scores (equivalent to Peery's social preference), it was found that the combined score was less highly related to observational measures than were each of the acceptance and rejection measures separately (Hartup, Glazer and Charlesworth, 1967).

Overall then, it would seem inappropriate to use these sociometric models as a basis for exploring individual differences in the patterns of friendship which children form with their peers. These models, based as they are on statements of dubious reliability (in the case of preschoolers) from the peers of the children in question, do not seem likely to provide a useful framework for understanding their patterns of social relationships in interaction with others. The alternative framework described earlier, pieced together from various observational studies which have made reference to types of friendships and friendship patterns seen in naturalistic contexts, is preferred. Whilst this framework has not previously been put forward as a coherent model of friendship pattern types, it does include (but not confuse) various aspects of friendship relations which have been distinguished previously, namely the strength or closeness of friendships, their degree of reciprocity and their breadth of range.

The research project described in this thesis set out to attempt a detailed description of the friendship patterns of a range of young children freely interacting in a nursery group. This task was approached with a model which was derived from the literature above, suggesting that three 'types' of friendship pattern might be found: (a) the 'reciprocated best friendship' pattern in which the child has a strong best friendship

reciprocated by his partner, (b) the 'unreciprocated best friendship' in which the child shows special 'friendliness' to another who does not appear to reciprocate it and, (c) the 'pluralistic' pattern in which the child shows no favouritism towards any particular other nor any evidence of a strong friendship. The child's range of companions was treated as a

separate dimension whose relationship to these friendship pattern 'types' was investigated. It was clear that detailed analyses of each individual's pattern of behaviour would be required if accurate assessments were to be made in terms of these friendship patterns. Evidence of preferential behaviour towards an unreciprocated best friend, for example, might come from a number of sources. It was therefore decided to initially treat all sample members as a series of case studies. These case studies would consider the child's social behaviour across a wide variety of variables integrating observational and interview data to provide a coherent picture of the individual concerned. Within each one, any evidence relevant to the child's friendship pattern would be sought. The initial adoption of a case study approach is an important feature of this study although, having identified friendship pattern groups in this way, the proposed grouping structure is then subject to verification and further investigation by multivariate analyes. In this way the nature and defining characteristics of different types of friendships and friendship patterns is also explored.

The second phase of this project goes on to explore the relationships between observed friendship patterns and styles of interaction as identified by Manning and Montagner. Thus patterns of friendship are linked in with established models of individual differences in social behaviour. In the light of the findings produced by both the first and second phase of analysis the theoretical approaches discussed earlier and their predictions for friendship patterns can then be reconsidered.

CHAPTER TWO

COLLECTION AND TREATMENT OF THE DATA BASE

PILOT WORK PRECEDING THE RESEARCH WORK DESCRIBED IN THIS THESIS

Exploratory research which led to the specific objectives and methodology of the study reported in this thesis began in early 1979. This initial exploratory work represented a first opportunity to look closely at children's patterns of association with their peers and to assess how they might best be described and measured. During this pilot study, observational data were collected from the youngest children in an Edinburgh primary school (the decision to concentrate on a nursery group had not been taken at that stage).

This observational data was collected in the school playground at breaktimes and at lunchtimes using a focal-child methodology - it consisted of two hours worth of data, collected in eight waves, on each of twelve children selected from the two primary one classes.

At that time friendship patterns were being approached with a simpler model than the one derived for the preschool study. This simpler model was based on separating out the two main factors confused in the intensivity-extensivity dimension described by Waldrop and Halverson (1975), these two factors being 'number (or range) of friends' and 'strength of best friendship'. By regularly recording the membership of each sample member's group during their observation periods, data was gathered which could then be transformed into measures of (1) the number of regular companions associated with and (2) the percentage of time spent in the company of the child's most frequent companion (this latter measure being considered as a measure of the strength of the best friendship). As well as group membership data, the type of play activity being engaged in was also noted and some anecdotal examples of the children's interaction were taken - it was not possible to consistently collect a continuous record of interactions

whilst following children all over a large playground area, and, anyway, it was frequently not possible to get close enough to hear all that was said without causing disruption to the ongoing activity.

Consideration of the results of this pilot study led to a reassessment of how the research project should proceed.

The results of the pilot study showed that there was not a significant relationship between the sample members' 'range of companions' and 'strength of most frequent companion' scores (r_s -0.44, n 12, n.s. at .05 level). Sample members were therefore assigned to four groups depending on whether they were above or below average on each of the two measures (i.e.: 1. many friends/strong best friend; 2. few friends/strong best friend; 3. many friends/weak best friend; 4. few friends/weak best friend), and differences between these groups on other observational variables were sought (e.g. group size, type of activity, time spent alone, etc.). Few of these variables yielded significant differences and these results will not be gone into in detail here for two reasons - firstly because they are not comparable to the results obtained from the main preschool study (as they use different measures) and secondly because consideration of these results and the progress of the pilot study brought the author to the conclusion that friendship patterns had not been (and could not be) properly investigated on the basis of the types of data collected in the pilot study.

The main lesson learned from the pilot study was that the relative importance of different friendships cannot be assessed simply on the basis of the amount of time children spend together. It was felt that frequency of association measures were not getting at real differences in the extent to which children concentrate on engaging in intense interaction with one particular friend. In order to identify meaningful differences in the nature of children's best friendships it was decided that detailed quantitative data relating to the content of the interaction between children

and their friends would have to be obtained. Furthermore, it was also evident that more detailed data would be essential if any hopes were to be entertained of identifying unreciprocated friendships - the factor of reciprocation came to be considered by the author as being of potential importance in children's friendship patterns in 1979.

The decision was made therefore, towards the end of 1979, to shift the focus of this research project onto a preschool group in a nursery school. In the nursery it was possible to collect continuous blow by blow accounts of children's interactions with their peers, thus allowing a much closer examination of the nature of their friendships. The scheme for categorising social interaction which had been developed by Manning was adopted as a good basis for initially analysing such data, (Manning et al. 1978). Use of Manning's category system would also have the advantage of allowing further analysis of the interaction styles of the children concerned.

A period of familiarisation with the individuals in the nursery selected, and of practice with, and development of, the category schemes used in the main study, began in October 1979. Familiarisation with the 23 individuals in the nursery was considerably easier than it had been in the primary pilot study for which over 60 individuals had to be confidently known by name.

At first the category system and technique of recording adopted from Manning was practised and supplemented with some additional categories thought to be of relevance to friendships. The two supplementary category systems were then developed as means of extracting more focused information which might help detect whether or not an individual showed preferential behaviour towards a particular friend. Methods of recording the child's level of social involvement and group status were also practised and revised over this period which led up to the commencement of the collection of the main data base.

Overall then, a fairly long period of 'research and development' preceded the beginning of the collection of the data base on which this thesis is based. During this period both methodologies and descriptive frameworks were developed. As a result of this preparatory work it was subsequently possible to undertake the main study with an approach which could be expected to explore more thoroughly the nature of children's friendship patterns.

A. SUBJECTS

The subjects used in this study were selected from the members of the Edinburgh University Nursery School. This is an experimental nursery school run under the auspices of the Psychology Department. Its intake is not restricted to University staff, but rather it is open to anyone who cares to apply.

When data collection commenced, there were 23 children attending the nursery. These children ranged in age from 2 years 6 months to 4 years 7 months at the outset. The sample was restricted to a subsection of this group for two main reasons. Firstly in order to give the sample a narrower age range. There is a strong general increase in sociability across the age range 2 to 5 years (Parten, 1932; Challman 1932), and so, as the intention of this study was to compare the behaviour of individuals at a similar stage of development, the range represented by the whole nursery seemed excessively large. Furthermore the younger children tend to be relatively unsettled - to many the nursery school environment is still relatively novel. The older children are more accustomed to interacting in large groups of peers.

The second reason for restricting the sample was a relatively pragmatic one - as the intention was to collect a wide range of information on each individual, and to do so over a reasonably short period (and thus avoid being affected too much by long term shifts in friendship alliegance), it was felt that a smaller group than the total 23 enrolled was to be preferred.

The single criterion used to select the sample members was that all should be less than a year younger than the eldest member of the class. In this way the fourteen eldest children were selected, ranging in age from 3:8 to 4:7 (Heather, the eldest). A full list of the ages of all children attending the nursery is given

in Appendix A.

The remaining group of non sample members thus initially contained nine members - this later became eleven on the arrival of Emily and Rosalind, a pair of twins who joined the nursery in the middle of the data collection period. Had these two late arrivals been present from the start they would have been included as sample members - if anything they border on being too old rather than too young for inclusion (both were over 4 months older than the eldest sample member at the start of the observation).

The sample chosen for observation suffers from two major types of bias. Firstly it contains rather more boys than girls (9 vs 5), reflecting a bias in the nursery as a whole (14 vs 9 initially). Secondly the sample is biased towards the higher socio-economic status groups. The university nursery group used, although not restricted to the children of university staff, does tend to attract a higher proportion of middle class parents than would be found in the population at large. The findings of this thesis cannot therefore be assumed to apply to all nursery groups - different findings might have resulted if groups of different sex and social class composition had been observed. Indeed this same limitation relating to the extent which findings can be generalised applies to any study which observes only one group of individuals. Even if a perfectly 'balanced' group were obtained, then generalisation would still be limited - after all, most nursery groups in the real world are 'unbalanced' groups of different sorts, at least in terms of socio-economic status. Their behaviour cannot therefore be confidently predicted by studying one (untypical) average group. In order to strengthen the generality of the findings of this study (or of any other one-sample observational study), a number of replications with groups of different compositions will be required.

TABLE 1: NAMES (PSEUDONYMS) AND AGES OF SAMPLE MEMBERS

	AGE
HEATHER	4:7
ROY	4:4
DONALD	4:3
DAVID	3:11
EDWARD	3:11
JEMIMA	3:11
GRETA	3:11
ANDREW	3:10
MALCOLM	3:10
JOANNE	3:10
MANDY	3:9
STUART	3:9
WILL	3:8
SANDY	3:8

B. OBSERVATIONAL METHODOLOGY

(i) Overall Organisation of Sample Collection

In order to provide independent and detailed samples of the behaviour of each sample member, a focal child observational technique was clearly appropriate (e.g. Smith and Connolly, 1972).

The total sample collected for each child consists of six independent twenty minute samples of continuous observation - the relatively long length of each sub-sample was intended to capture the development of longer episodes of play as well as more transient interactions.

Data collection was carried out in six waves. In each wave one sub-sample was collected for each child - the order in which the children were observed was separately randomised for each wave. In this way the full body of observational data was built up over a period of eleven weeks (11th March 1980 to 29 April 1980).

All the samples were collected using paper and pencil techniques, with the observer wandering freely amongst the children in discreet pursuit of his target. The use of a mini-cassette recorder had been tried but found not to be advantageous during an extensive period of 'research and development' on the observational techniques and category systems used.

By the time data collection commenced, I was very familiar to the children - there was never any indication that my presence as an observer was interfering with or inhibiting their actions to any significant degree. When approached by a child I reacted with a minimal friendly response, discouraging further interaction. My experience is thus in agreement with the findings of Connolly and Smith (1972), who report that the responses of pre-school children to a strange observer fall to a very low level over a short period of familiarisation.

(ii) Content of Observational Samples

The system devised for translating the stream of behaviour observed into raw data appropriate to the purposes of the study was a combination of time sampling and continuous

TABLE 1a : SUMMARY TABLE OF INFORMATION COLLECTED BY THE TIME-SAMPLING ELEMENT OF THE OBSERVATION SCHEDULE

(i) GROUP STATUS; 4 categories used :- (a) Peer group; names of all companions noted (b) Melee (c) Teacher; any peer companions noted (d) Alone
(ii) ACTIVITY TYPE; noted as contextual information - for details of categories see Appendix B
(iii) LOCATION; child's location in nursery briefly described
(iv) LEVEL OF SOCIAL INVOLVEMENT; 6 categories used :- (a) Solitary (b) Melee (c) Parallel (d) Social one (e) Social two (f) Social three

TABLE 1b : SUMMARY TABLE OF CATEGORY SCHEMES USED ON THE CONTINUOUS ELEMENT OF THE RAW DATA.

CATEGORY SYSTEM ONE; applicable to all social acts recorded

FRIENDLY ACTS; (1) adaptive, (2) self, (3) boast, (4) claim, (5) attention, (6) display, (7) reach, (8) approach, (9) greet, (10) join, (11) other, (12) request, (13) demand information, (14) demand object, (15) demand entry, (16) seize, (17) object, (18) show, (19) copy, (20) follow, (21) compare, (22) terminate, (23) initiate, (24) relationaship.

ORGANISING ACTS; (25) adaptive, (26) physical, (27) organising plus, (28) organising minus, (29) organising

CONTRARY ACTS; (30) contrary plus, (31) contrary minus, (32) contrary, (33) contrary fail

ANNOYING ACTS; (34) annoying

plus and minus qualification applicable to various categories as an option

CATEGORY SYSTEM TWO; applicable to acts occuring in a sustained bout of joint play or acts attempting to initiate such a bout

(I) minimal response (II) potential opener

(III) following (IV) leading

CONTROLLING ACTS; applicable to acts which attempt to direct or control the future behaviour of another

(i) adaptive control

(ii) dominating control

transcription methodology.

The time sampling element involved answering 4 questions at the end of every 30 second period within each sub-sample (thus 40 times in all), whilst the continuous element involved jotting down, as far as possible, a verbatim account of the 'targets' verbal interaction with others and any other clear social acts of a non-verbal nature.

(a) The Time Sampling Element

Every 30 seconds the observer answered the following four questions by marking the appropriate boxes on the observation recording sheet:-

(i) Which others are members of the target child's group?

At the end of each 30 second period the observer noted down the names of all other members of the target child's current group. To qualify as group members the other children must either (a) have been scored as members in the previous period and then have shown no signs of leaving until at least after half of the current period had elapsed, or (b) have been seen to join the group and then be a member of it for more than half of the current period. Thus children involved in very transient interaction with the group were not included as group members.

In some situations it was difficult to decide whether or not an apparently borderline case should be included - this happened most often in groups engaging in parallel activity. If it was decided, however, that the peers around the target child did constitute a definite group, all members considered to be in this group (according to the criteria above) were scored as companions, regardless of whether they, or the target child, were currently involved at a parallel or social level of involvement (see p.36 for definitions).

Three other possible definitions of the child's group could be given:-

Firstly the condition MELEE could be scored. Melee caters for situations in which there is no clear group membership and no stable group, but there are nonetheless a number of children involved in a similar activity, apparently taking some encouragement from each other in doing so. The most common example of this type

of play involved a number of children rushing around the outdoor play area pretending to be fire engines or police cars. Sometimes, of course, such play did occur as an organised activity amongst a defined group of children, but on other occasions there would apparently no organisation at all - the participants would be constantly changing with each apparently having only a vague idea of which others were also involved.

Secondly the condition TEACHER could be scored. This category was used when the activities of the target child, with or without his current group, were seen to be centred around the Teacher or any other adult (for more than half of the current 30 second period).

Thirdly the target child was scored as ALONE when no other individuals qualified as companions for that period (i.e. no other child was with the target child for more than half of it). Brief interactions with others could take place within a period scored ALONE.

(ii) What type of Activity is the child engaged in?

The observer answered this question with reference to a category system devised by Margaret Manning, choosing one of fifteen options (see Appendix B). These data proved to be most valuable as a source of contextual information, aiding subsequent interpretation of the childs actions at that time.

(iii) Where is the child playing?

A brief indication was also given of precisely whereabouts in the play area the target child was located. This information also helped to describe the context in which the child's interaction should be interpreted.

(iv) At what level of social involvement are the child and his companions interacting?

This fourth question was answered with reference to a category system which aims to identify increasingly complex levels of behavioural coordination and cooperation in the activities of the child and his companions.

The system consists of six categories - again to

qualify for any one of these it must have been seen to apply for more than half of the relevant 30 second period.

SOLITARY: The child was not socially involved with any other individuals, i.e. the child was engaging in activity with no companions and without reference to others.

MELEE: The child was playing within a MELEE group (see p.34), i.e. a group whose membership is not stable. The level of social involvement within a melee group is, by definition, minimal. Players are taking encouragement from each other and acting in a similar manner, but are not directly interacting with each other to an significant extent. This category is therefore similar to the next category (parallel), but they had to be distinguished as it was not possible to determine whether or not the best friend had been present in the case of melee - this had to be known in order to allow comparison of the child's social involvement when 'with' and 'without' the best friend. In comparison to parallel groups melee groups generally tended to be larger and more physically active.

PARALLEL: Parallel play is commonly held to be the earliest and least sophisticated form of group play in which children participate (Miller 1968; Garvey 1977). It is normally defined as play in which the participants are engaged in the same sort of play and are monitoring each other's activity, but are not coordinating their actions with the other members of the group. Interaction, therefore, is usually minimal. In this study (as with the following Social Play categories), the focus is on the social involvement of the target child within the group rather than the group overall. Thus whilst others in the group might by playing at a higher level of social involvement, the target child would be scored at the parallel level if that were all his participation warranted.

Three categories of increasingly sophisticated involvement in social play were included, although the third and most demanding of these categories was hardly ever seen to be applicable. These categories follow Manning et al (1978).

SOCIAL ONE: verbal or physical interaction without obvious cooperation in relation to the activity in progress - e.g. chatting during snack, commenting upon one's own prowess whilst climbing or painting or playing

with cars.

SOCIAL TWO: either talking in a cooperative way about an activity (e.g. each providing ideas about how sand pies should be made or planning a game), or cooperating in an activity (e.g. chasing each other in fun, one pushing another in a cart or swing). The essential point is that the child is doing something that helps or enriches the activity of another and is in some sense a necessary part of that activity. The types of fantasy play usually seen in the nursery often appeared in this category although if the children were simply being 'monsters' or 'robots' in a loosely organised group and only commenting on their own actions then the category Social One would be used.

SOCIAL THREE: this category requires advanced cooperation at a level beyond that commonly seen in the nursery - role play with clearly defined reciprocal roles, where each is acting a separate part and engaging in cooperative activity with another within their role in the play. It was very rarely used.

(b) The continuous Element

The blow by blow account of the target childs interaction with his companions, which consisted as far as possible of a verbatim account, was noted down on the left side of the observation sheet used for the time sampling data. It was also organised with respect to the same 30 second markers, such that all the interaction noted down within each 30 second period would be put down, in order, in a separate section of the sheet.

When the observer did not clearly hear an utterance but was confident of its meaning, it might be paraphrased (and marked accordingly) or noted down directly in terms of category system one, a system into which all social acts were promptly converted. Thus a hostile (but indistinguishable) rejection of a partners action might be noted down as Contrary minus.

In noting down physical social acts I was not able to consistently consider subtle non verbal cues but rather restricted myself to more gross physical acts. Such a system as this necessarily restricts the amount of fine detail which can be dealt with. Thus typical physical acts recorded were of the nature of a friendly hug or a contrary shove. Such acts were usually noted down already coded in Category System One as the observer was very familiar with the system, but where there was any hesitation about making an immediate decision a more literal description was given on the record sheet for later consideration.

In addition to social acts given by the target child the system also involved collecting all social acts which were directed at the target child by others, or which were reacted to by the target child although not specifically directed at him. Information about who the target child was acting towards, and who, in turn, was acting towards him was consistently taken. Thus the continuous element of the data consists of both social acts given and received by the target child.

(iii) Treatment of the Continuous Element of the Raw Data

As soon as possible after the collection of each sample, the continuous record of interaction was converted into a sequence of category labels in accordance with a system which shall be referred to as Social Acts Category System One (or Category System One).

As the samples were collected in the mornings, they were usually converted into Category System One acts the same afternoon. This meant that the relevant events were still fresh in the observer's memory and use could therefore be made of incidental contextual information. Although the system does not rely on memory to any great extent, it was nonetheless clearly more efficient to minimise any delay.

The raw data, which was retained intact, was subsequently recategorised with respect to two further

systems, both of which concentrate on particular types of interaction occurring within the samples collected.

(a) CATEGORY SYSTEM ONE

Category System One is a slightly modified version of a classification system developed by Manning in her study of interaction styles. (Manning, Heron and Marshall 1978, Manning and Vowles 1977, Manning and Herrman 1981). It allows categorisation of the full range of social acts observed, whether friendly or agonistic.

Manning's category system was used for two main reasons. Firstly because it separates out classes of social act which might be expected to occur particularly frequently or infrequently within close friendships and which allow one to gauge the friendliness of any child's orientation towards another. The system also allows regrouping of the basic categories to collect acts into larger groupings after the data has been initially treated. Secondly, the use of this system allowed subsequent categorisation of the sample members into interaction style with a high degree of accuracy and thus provided a firm basis for the second phase of analysis in this study. (See Chapter 6).

There are four main classes of social act in Category System One and 34 categories in all. A few of these categories (all in the friendly class) were added by the author - these are marked with an asterisk in the following list.

A feature of Manning's classification scheme also used is the option of qualifying any act with either a plus or a minus sign where relevant. An act should be qualified with a plus if it seems designed to make the current interaction more interesting for a companion of the actor, and if it is presented with enthusiasm.

A minus is added to any act which is presented in an inconsiderate manner or which is clearly against the interests of its recipient at the time. In some cases the minus simply indicates a child's lack of consideration

of (or lack of respect for) how others might feel about, or react to, his/her actions (e.g. any acts in the Friendly or Organising classes with minus qualifications) whereas in other cases it reflects aggression or hostility to others (e.g. all 'Annoying' acts and all 'Contrary' acts with minus qualifications). The definitions of a few categories include attribution of a plus or a minus but in most cases it was optional - those categories which could be qualified by the addition of a plus or a minus will be indicated by putting the appropriate symbol(s) in brackets after the category title. Most acts remained unqualified however.

The categories are grouped according to the four superordinate classes:-

(a) FRIENDLY ACTS: This category caters for all acts which communicate to others but which are not directly organising the behaviour of others, nor directly opposing the immediately previous actions of others, nor clearly intended to provoke or annoy. Aggressive acts cannot be included in this class therefore, whether provocative or reactive, and for this reason Manning titled it 'friendly'. The title friendly should not be taken strictly as a functional descriptor however, as, although most of the acts which fall within this class do promote or maintain positive interactions with others, some of them can be presented in a manner which is inconsiderate to others and so can cause upset (these being marked with a minus). It is crucial to the definition of the friendly class however, that these acts were not clearly intended to provoke or annoy others - if they were they would go into the 'Annoying' class. Instead of Manning's class descriptor 'friendly', which is used here, others might be applied such as the term 'linking' acts used by Montagner (1978, 1982) (although within the context of a different type of classification system).

Friendly acts can be communicating about self or objective things, giving or receiving information, expressing interest in others, offering, showing, helping, comforting or exploring or defining relationships with

others. There are 24 sub-categories of Friendly acts:-

Category 1, Friendly Adaptive (+); comments or acts which are adapted to the recipients interests in that the actor's behaviour seems to take consideration of the recipients perspective to some extent. Thus the actor is behaving in a way which seems deliberately designed to please the recipient or ameliorate his reaction to the behaviour involved. This includes:- (a) Showing interests or approval of the other child as a person, of his appearance, his activities or his suggestions. (b) Acts, comments or innovations which indicate a shared interest and/or equal roles within a play episode or extensions of a theme which the other is actively enjoying. (c) Comforting, enquiring after the well-being or needs of another or fulfilling another's needs or desires. (d) Offering information, objects or roles clearly desired by another.

Category 2, Friendly self (+/-); Comments about the actor's own activities or interests which do not come under the categories Friendly adaptive, Friendly boast, Friendly attention, or Friendly claim. These acts are often of little interest to others.

Category 3, Friendly boast (+/-); Remarks which promote the superior status and/or abilities of the speaker. Includes competitive challenges and comparisons, e.g. "I can jump further than you."

Category 4, Friendly claim (+/-); Acts which seek to establish property, rights or priorities in favour of the actor, e.g. "that's my place", or "I have the first shot".

Category 5, Friendly attention (+/-); Acts which seek to attract attention to what the actor is doing, what he is saying or what he has achieved - this includes shouting, calling or displaying to any particular other but does not include showing an object of mutual interest (F. show: category 18).

Category 6, Friendly display (+/-); Any act which is likely to attract attention from others but which is not directed at any particular person, e.g. rushing around noisely waving sword or shouting "I'm the king of the castle".

Category 7, Friendly reach (+/-); Acts intended to instruct another in some activity, although they are not necessarily of interest to the other.

Category 8, Friendly approach (+/-); Direct approaches to another (with whom the actor has not recently been interacting) which are intended to produce more than a brief interaction.

Category 9, Friendly greet (+/-); Acts which involve overtly greeting another, but which are not attempts to establish a more prolonged interaction between the interactants.

Category 10, Friendly join; Tagging onto an already formed group without making direct overtures to any particular members, and joining in the group's activity.

Category 11, Friendly other (+/-); Acts which refer to the activities, possessions, characteristics of another without comparative reference to the actor himself. Such acts show knowledge or interest in the other (and for his activities) for its own sake rather than in competitive context or in the context of an attempt to alter the other's behaviour.

Category 12, Friendly request (+/-); Friendly and polite requests for objects, resources or roles.

Category 13, Friendly demand information (+/-); Acts which directly ask for information from another.

Category 14, Friendly demand object (+/-); Acts which directly and uncompromisingly demand object from another (although not including seizure), forcefully rather than politely, e.g. "Give me that lorry".

Category 15, Friendly demand entry (+/-); Acts which directly demand entry to a game or group activity already in progress, e.g. "Let me play", "I want to be a cowboy too".

Category 16, Friendly seize (-); Direct seizure of an object from another's possession in a manner indicating that both actor and recipient want possession of it. Generally brusque physical snatching.

Category 17, Friendly object (+/-); Comments about the characteristics, location or properties of an object, not necessarly of interest to the others involved.

Category 18, Friendly show (+/-); Showing an object of mutual interest to another, thus indicating appreciation and encouragement of the other's interest. Generally includes comments such as, "Look at this", "See this one".

Category 19, Friendly copy (+/-); Acts which are directly imitative of another's immediately previous actions, without adding anything new or original to it.

Category 20, Friendly follow (+/-); Overt pursuit of a companion who changes location and/or activity without making any prior arrangement for the actor to join him in doing so.

Category 21, Friendly compare (+/-); Acts which make direct comparisons between the actors activities, characteristics, possessions and those of another, but not in a boastful or competitive way e.g. "I've got a yellow bike and you've got a blue one".

Category 22, Friendly terminate; Acts which clearly terminate an ongoing interaction in a friendly manner and involve no attempt to encourage further interaction with those same group members in any way. Frequently involves simply taking leave of the group with a comment such as "I'm off now", or "I'm not playing now".

Category 23, Friendly initiate (+/-); Acts which actively seek to initiate a new bout of play or constructive activity with another or others. Can occur within an already interacting group if the actor is proposing a completely different activity for the group to engage in. These acts are usually designed to catch the interest of others and so often show some adaptiveness and consideration of the other's points of view or interests.

Category 24, Friendly relationship (+/-); Acts which refer to a social relationship between the actor and another. For example statements such as "You're my friend", and "I like you, you can be my friend". This category could equally be applied to declarations of enmity.

(b) ORGANISING ACTS: These are acts which give direct instructions to another about what he/she should do in the immediate future. Acts simply trying to prevent another from doing something which the actor doesn't like are not included (CONTRARY acts). Organising acts clearly show or tell others what the actor wants them to do.

Category 25, Organising adaptive (+); Organising acts which show consideration for the other's perspective, i.e. which are deliberately tailored to suit the recipient or be more acceptable to him than they might otherwise be. Adaptive is here used in the same sense as in Category 1, Friendly adaptive.

Category 26, Organising physical (+/-); Organising others by any physical manipulation, usually pushing or shoving.

Category 27, Organising +; Acts attempting to make another do something which they might well enjoy doing, but which is not particularly adapted to them (in contrast to acts of Category 25 above), e.g. "come on over here and play cowboys and indians".

Category 28, Organising - (minus); Acts aimed at getting someone to behave in a way which seems likely to be contrary to their intentions, e.g. "There's too

many of us in this game - Angus you go and play with the blocks".

Category 29, Organise; All other types of Organising act, neither particularly attractive or unattractive to the recipient.

(c) CONTRARY ACTS:- Acts which oppose the actions of another and seek to change them. These can be opposition to propositions or overtures of another, or the ignoring of another's attempts to organise the actor himself. Contrary acts are always a reaction to another's behaviour, although the action of the other has not necessarily been directed at the actor specifically.

Category 30, Contrary plus (+); Contrary acts which offer an attractive and plausible alternative to the recipient, i.e. constructive attempts to oppose another's actions, e.g. "no not that one, here's a much nicer dress".

Category 31, Contrary minus (-); Contrary acts involving some hostility on the part of the actor. Usually the subject is either reacting in a hurt and defensive manner or counter attacking in an agressive fashion.

Category 32, Contrary; Contrary acts which are neither hostile nor offering positive alternatives, but which do acknowledge awareness of the other's action.

Category 33, Contrary Fail; This Category is scored where an individual attempts to oppose another's actions by simply ignoring it or pretending not to have heard. Quite often seen in response to unwelcome Organising acts from others.

(d) ANNOYING ACTS:-

Category 34, Annoying (-); Any provocative act which is contrary to the interests of the recipient and which is normally hurtful, interfering or frustrating in some way, whether physically or psychologically (jeers, insults). These are always deliberate acts which the actor is clearly using to discomfort or harrass others, often with little apparent justification.

Two other major groupings of social acts were created by the author, cutting across the four pre-defined classes of category system 1. These groupings

are, in a sense, opposites. The 'adaptive' group gathers together categories in which the actor seems to be encouraging the smooth progress of co-operative activity with a peer, or modifying his actions to suit another (in a positive sense). The four categories involved are (1) Friendly Adaptive, (23) Friendly initiate (25) Organise adaptive and (30) Contrary plus.

The 'counteradaptive' group draws together acts which are clearly against the recipients interest and seem likely to be perceived as such by the actor. Thus they indicate either disregard for the interests of the other, insensitivity in appreciating their viewpoints, or hostile intent. There are four categories in this group, (16) Friendly seize, (28) Organise minus, (31) Contrary minus and (34) Annoying.

Subsequent analysis of category system 1 acts is, for the most part, in terms of classes or groups of categories.

(b) CATEGORY SYSTEM TWO:-

Category System Two was created by the author to provide specific information about the subject's participation in bouts of social play with his peers. It therefore relates only to a sub-sample of the observational data collected for each child. Only those social acts which occurred during the progress of a play bout, or in a situation where an attempt is being made to initiate such a bout are relevant to this classification. There are four categories in this system.

I; minimal response; Any short response, whether physical or verbal, which may be enough to keep an interaction going, but adds nothing more to it. Such acts may indicate a lack of enthusiasm if appearing in response to an initiative from another.

II; potential opener; Any social act which seems to be aimed at starting off a new bout of joint activity, whether successful or not. This must be a friendly initiative which positively encourages interaction of

a maintained, rather than purely short term nature.
III; Following; Following acts always appear during the course of bouts of joint activity. This category includes any acts which continue or carry forward an ongoing activity but which do so without introducing anything significantly new to the situation. In this sense they 'follow' an already established line of play. Such acts may be performed with much enthusiasm and involve full participation on the part of the actor.
IV; Leading; Leading acts are the other main type of social act which occur during the course of maintained bouts of play. Such acts introduce new ideas to a joint activity and suggest ways in which it might be developed. Others do not always choose to follow these ideas, but a positive impetus is being provided by the actor.
The continuous data for all sample members were re-analysed with respect to category system 2, again coding both acts given and acts received.

The distinction between 'leading' and 'following' acts is the most important. It was felt that it might be interesting to look at the extent to which individuals tended to be 'leaders' or 'followers', and how far 'leading' and 'following' is balanced within best friend relationships. In most cases these two categories account for the vast majority of an individual's category system 2 acts.

(c) CONTROLLING ACTS:-
The continuous data for each individual were recategorised for a third time with respect to a yet smaller and more specific category system.

This system was created by the author to focus on social acts which attempt, more or less directly, to control the behaviour of others within the context of joint activity. Attempts simply to prevent another from doing something against the actors own interests are not included unless they suggest an alternative course of action. Thus this class of acts is essentially concerned with attempts to

make others act in accordance with the actor's own plans.

Many controlling acts were acts which had been classed as Organising acts under category system one, indeed all organising acts must necessarily also be controlling acts (see definition of Organising acts, p.43). The definition of controlling acts is more inclusive however. As well as Organising acts, any Contrary acts which attempt to control the recipient's future behaviour (beyond simply stopping him/her doing what he/she was doing) qualified. Friendly acts can also qualify if they clearly carry an expectation of future behaviour on the part of a playmate. The most common acts of this type were statements about what 'we' were going to do; for example one child said to his companion "now we are going to be spacemen" and proceeded to alter his play activity accordingly assuming (correctly) that the other would follow suit. Although such acts are not directly 'organising' another's behaviour, through their reference to future joint action they communicate expectations about it.

The overall class of controlling acts therefore brings together acts which aim to control the behaviour of others, disregarding the distinction made in category system one between reactive acts of control (occurring in the Contrary class) and proactive ones (Organising acts), whilst also including more indirect (but nonetheless clear) acts which also have controlling intentions. In separating out this class of controlling acts, the aim was to distinguish between two different types of control, adaptive and dominating control, and to see how much each sample member tended to use each of them. Unfortunately not all of the controlling acts which occurred during the sample periods were useful towards this end - any which had been originally noted down in terms of a category system one label (rather than fully described) could not be assigned to the adaptive or dominating categories (unless they were noted as Organising adaptive or Organising minus) and so were not considered as controlling acts for

the purposes of this system. The definitions of adaptive and dominating control are as follows:-

(i) Adaptive control; Controlling acts which are presented in an adaptive or considerate way. The actor is using friendly persuasion and attempting to present his suggestion as something the other will enjoy doing. e.g. ROy "Stuart get up and I'll do something special".
(ii) Dominating control; this sort of controlling act involves no such adaptiveness but is rather an attempt to bully, threaten or browbeat another into following the actor's suggested course of action. e.g. Donald "You must do it like that".

Hostility is not necessarily involved but usually the actor seems impatient with others who do not exactly do as he or she tells them.

The results of this third categorisation system should complement those of the other two, by providing more focussed information. For example, where a child is seen to produce 'leading' and 'organising' acts frequently, this third analysis will show the extent to which he tries to 'control' his peers in an adaptive or dominating fashion.

(d) RELIABILITY OF THE OBSERVATIONAL DATA BASE

In observational studies using category systems, inter-observer agreement scores are commonly reported - these measure the extent to which two independent observers produce similar categorised accounts for the same sample of observed behaviour. Two main sources of error tend to produce disagreement (1) one observer might see, and separately categorise, items of behaviour which were not noticed by the other or which were not considered to be distinct or relevant for categorisation; (2) given that both observers noticed (and considered for categorisation) the same piece of behaviour, they might categorise it differently on account of varying interpretations of the category system, ambiguity inherent in the system or

varying interpretations of the act in its context. Poor inter-observer agreement scores can indicate problems in any of the above areas. High inter-observer agreement scores, on the other hand, suggest that, at the time of the paired observation, events and the category system used to describe them were interpreted in a similar way by both observers, thus implying that the category definitions can be consistently communicated from one individual to another. Of course some training may be necessary on more complex systems but nonetheless if good levels of agreement can be attained then the category system can be considered workable. Unless repeated paired observations are made by the same observers at different points in the course of a study, inter-observer agreements tell us nothing about the consistency with which either observer uses the system.

Inter-observer agreement is clearly of most relevance when two or more observers are contributing equivalent data to the same data base. It is essential, in such cases, that all observers use the system in as similar a manner as possible. In the present study, however, all the data were collected by the same observer - the most important factor for the reliability of the results is therefore the consistency with which that observer (myself) used the observation recording and categorisation systems. Inconsistency in this respect might be indirectly indicated by poor agreement between observers over a number of periods separated in time.

Two types of agreement procedures were carried out on the continuous data base of this study. The first involved independent simultaneous observation and subsequent categorisation of the behaviour of the same child, and thus was an inter-observer agreement procedure reflecting any or all of the potential sources of error described earlier. The second procedure involved an independent coder, familiar with the system, recategorising raw data transcripts recorded by myself - this produced an inter-

coder agreement score.

The inter-observer agreement score was calculated from data relating to a twenty minute period of paired observation carried out by myself and by Margaret Manning (March 1980). Both observers recorded the social acts given and received by a chosen sample member and then later categorised these transcripts independently according to category system one as described in this thesis. Comparison of the categorised records yielded a concordance score of 0.77, calculated according to the method described in Smith and Connolly (1972).

The procedure of comparing coders dealing with identical raw transcripts was considered more appropriate at later stages for two main reasons. Firstly, because considerable training and practice on the methods of gathering raw data, together with a high level of familiarity with the children in the nursery, had enabled me to collect relatively complete transcripts, and, furthermore, the inter-observer agreement reported above had shown that my raw data did not disagree severely with that of another trained observer. The continuous raw data in this study consisted primarily of verbatim accounts of speech and so its recording was fairly straightforward at that stage. The second reason for using inter-coder agreements was that having two observers following one child in a nursery, both close enough to hear what is being said, can be very disruptive to the children and so cause untypical sequences of interaction. For this same reason it would also be inadvisable to carry out a sequence of paired observations in sample periods which would be intended to become part of the data base. Using inter-coder agreements however, it was possible to select a range of transcripts, recorded and categorised by myself and at various points in the progress of the data base collection, and have them recategorised (blind) by a trained observer at one point in time (thus making the agreement score obtained susceptible to any inconsistency in the way the author

used the category system at different points in the data base collection process).

The inter-coder agreement was calculated according to the following procedure.

Eight five minute samples of raw data were randomly selected from the overall body of data collected. These had already been transcribed and converted into a series of category system 1 social acts by myself (WM). A copy of the raw data was then presented to the other scorer, Margaret Manning (MM). Having herself created the system used, MM was of course extremely familiar with its use. The few extra categories included in the friendly section were pointed out to her, although all are relatively infrequent. MM then scored the raw data, blind to my previous version, and the two sets of results were compared. Overall, in the 40 minutes of raw data involved, 219 social acts were observed. Of these the two scorers agreed on 188, giving an overall reliability of 85.8%

Of the total of 31 disagreements, only seven involved disagreement over the major classes to which the act might be assigned (i.e. Friendly, Organising, Contrary, or Annoying). Thus reliability across the four major classes was 96.8%

The most common source of disagreement was a tendency for MM to be more cautious or reluctant to give the attribution of Friendly adaptive, and to give the attribution Friendly or Friendly + instead.

In general these reliability statistics seem satisfactory, especially with respect to the four major classes on which much of the subsequent analysis is based.

Some relevant inter-observer agreement data were also obtained during preliminary practice of the time sampling data collection procedures. The author (WM) carried out two periods of paired observation with another researcher (AMS) in a nursery playgroup in Edinburgh

(not the sample nursery). Across the total of 80 '30 second periods' concerned, there was 75% agreement on the child's level of social involvment, 95% agreement on whether the child was alone, with Teacher or in a group (including parallel play) and 76.25% agreement on the category of activity engaged in.

In conclusion it is suggested that the data collected in this study can be expected to have a good level of internal reliability. It was all collected by a single researcher who was well practiced with the techniques used and highly familiar with members of the nursery concerned. The measures of inter-observer and inter-coder agreement reported above tend to support this conclusion, all of them being reasonably high.

(C) INTERVIEW DATA

Each child was separately interviewed by the author in an effort to elicit the child's own perception of who his friends are, and what friendship means. The interviews took place immediately after the observational data had been collected.

The interview situation was designed to be as informal as possible. A room underneath the nursery was used. After asking the child if he would like to come out to talk (accepting 'no' for an answer if necessary), the child was taken to the interview room and seated at a low table with some toys and comics spread across it. A microphone was concealed in a toy garage in order to record the conversation and thus eliminate the need for any writing during the interview.

The conversation that ensued was informally structured around an interview framework, so that in all cases 8 key elements were always included:

(1) "Who is your best friend?" Followed by "Why is he your best friend?" and "What do you play at with him?"

(2) "Who is your second best friend?"

(3) "Who is your third best friend?"

(4) "Is there anyone you don't like or hate?", and if so why.

(5) "Who from the nursery lives near your home?"

(6) "Do you have any friends at home who are not at the nursery?"

(7) "Do you see anyone from the nursery out of school hours? Someone who comes round to your house perhaps?"

(8) "Imagine you were having a birthday party on Saturday. Who would you invite?"

Questions 1, 2, and 3 were always asked near the start of the interview and in that order. Question 8 was always asked last. The others varied in order and all varied in the way in which they were introduced and in superficial details of their wording.

One child was missed as he left the nursery before he could be interviewed, (Edward).

Question 8 was designed to supplement questions 1, 2 and 3, particularly if the child could not produce three friends when first asked. Most could indeed produce three friends, but could not give reasons for their choices or discuss friendship in general. This is probably because they do not have well formed conceptions of 'friendship' or 'friends' in the abstract at that stage, as indicated by the work of Selman (1976, 1981). Often, however, what the child did say in the course of conversation proved to be of interest in the overall case study. Sample members ranged from the extremely reticent to the highly garrulous.

Question 8 also provided a way of assessing the reliability of the children's responses to questions 1, 2 and 3. If the children nominated in questions 1, 2 and 3 were indeed significant friends then the children concerned should also tend to invite these same individuals to their parties when responding to question 8. Comparisons

of the children's nominations in questions 1, 2 and 3 and their nominations in question 8, yielded the following results:-

Question 1; Of the thirteen 'best friend' nominations gained (all children interviewed gave a nomination in response to question 1), twelve of these were confirmed by appearing in the same child's party list.

Question 2; Of the eleven 'second best friend' nominations gained in the interviews, eight were confirmed by question 8.

Question 3; Of the eight 'third best friend' nominations obtained, three were confirmed by question 8.

These results suggest that the 'best friends' nominated by the sample members do reliably relate to individuals whom they perceive to be important to them at that time. Furthermore, these results also suggest that the children do tend to supply first, second and third best friend nominations in order of perceived importance and that diminishing amounts of weight should be put on the children's first, second and third nominations as a consequence.

(D) DUAL FUNCTION OF THE DATA BASE

The body of data produced by the methodology described in this chapter was intended to serve two functions. Firstly to provide a wide range of information about each child's pattern of friendships and secondly to make possible the further assessment of each individual in terms of his/her temperamental or 'interactional style' characteristics.

Whilst the second of these analyses involves a direct comparison and integration of individual's scores on 4 Category system one measures, the first analysis involves inspection of each child's scores on all the types of data produced and comparisons of different sub-samples within an individuals data.

Full details of the procedures involved in these two analyses will be fully described at the head of the relevant chapters which describe and discuss their results (Chapters 3, 4 and 6).

CHAPTER THREE

THE DESCRIPTION AND CLASSIFICATION OF FRIENDSHIP PATTERNS BY CASE STUDY ANALYSIS

In the introduction to this thesis it was shown that two opposite types of friendship pattern have been recurrently proposed in the literature. The 'intensive', or close and exclusive best friendship pattern and the 'extensive' or wide ranging pattern with no particular close friend. It was also further suggested that a third pattern, whilst rather more difficult to detect, might also be present. This third type of pattern would be characterised by the child acting in an especially friendly fashion towards a particular 'best friend' but not receiving a reciprocal pattern of friendliness in return. Such a pattern may reflect an unsuccessful attempt to develop an 'intensive' type of friendship pattern.

For the purposes of this study, these three types of friendship pattern shall be defined as follows (with abbreviation for each in brackets). None of these definitions make any reference to the child's range of companions which is measured independently. They are presented now in the order in which they will usually be dealt with in the text. I Reciprocated Best Friendship, (RECIP BF) - child shows evidence of having a strong or close best friendship which is reciprocated by the other partner. II Unreciprocated Best Friendship, (UNRECIP BF),- child shows evidence of consistently acting in an especially friendly fashion towards one particular other with whom a strong relationship does not exist and who does not appear to reciprocate his 'special' friendliness. III Pluralistic, (PLURAL), - the child shows no evidence of behaving with 'special' friendliness towards any of his peers but rather appears to be equally friendly towards a group of companions.

The initial aim of the analysis described in this chapter was to examine and describe the friendships of the fourteen sample members using the above mentioned friendship pattern typology as a descriptive tool. If

this typology did appear to be making useful distinctions, of a non trivial nature, among the children observed, then further multivariate analysis of relevant variables would then be carried out to ascertain which of these were best able to distinguish between the groups involved.

It was felt important, as a general principle, that at this stage in the study, the children should all be examined as case studies, so that the wide range of data available on each could be integrated to form a coherent picture. Consequently for each sample member a case study was prepared - these were essentially looking for any evidence to suggest that the child concerned had a single particularly strong friendship, or alternatively that he acted in a particularly preferential manner towards another with whom he would like to form a close friendship.

A: BEST FRIEND SELECTION

A major consideration in the design of the methodology for this study was that it should allow for the identification and extraction of each subject's interactions with the one other child who might best be considered to be his/her closest or strongest friend. The data should then enable a comparison to be made between each child's interactions with his/her best friend and his/her interactions with other peers in general. This best friend cannot confidently be identified before data collection has begun, therefore the data collection system used here allowed for the separating out of any sample members interactions with any one of his peers after the raw data had been collected. To this end full information about who the subject was acting towards and who was acting towards him was required.

With this type of data available, a consistent method for selecting an individual's 'best friend' was then operated.

Two types of data are commonly used to indicate an individual's 'best friend' in the literature:- Interview data eliciting the child's friendship choices (e.g. Marshall & McCandless '57, Moore and Updegraff '64) and

observed Patterns of Association (e.g. Potashin 1942, Clark, Wyon & Richards, 1969). In this study both types of data were collected and integrated in order to produce a more confident decision.

Interview data alone are of limited value. Whilst they may give an accurate indication of strong 'best friendships', in more moderate cases the child's nominations may be found to be misleading. Omark, Omark and Edelman (1975) showed that nursery age children often tend to nominate children with whom they would like to be friends rather than those with whom they are in fact on close terms. These optimistic choices of high status peers tend to have little basis in reality. Such choice/actuality differences have been noted also by other researchers (Potashin 1942, Smith and Delfosse 1980).

Therefore, in order to complement the Interview data (collection of which has already been described), the 'group membership' data collected for each individual were analysed to provide a matrix of association for each sample member. Such a matrix shows how many 30 second periods the target child was observed to be in the company of each of the other members of the nursery. It thus easily yields a rank order of those others with whom the target child frequently associates.

A second matrix of association was also constructed for each child, this time using only those 30 second periods in which the target child showed social involvement beyond the Parallel level (i.e. Social 1, 2 or 3). The rank order produced from this matrix therefore indicates those others with whom the target child was most frequently engaged in social activity.

The correspondence between the children's own interview choices and each of their observed patterns of association were computed according to a method devised by Smith and Delfosse (1980). This method is based on the principle that if the choice and association measures are unrelated then the individuals chosen by the subjects as best friend nominations will be randomly scattered

Henceforth 'frequency of association' always refers to companionship at either parallel or social levels of involvement - 'frequency of association with social involvement' refers only to companionship at a social (1, 2 or 3) level of involvement.

along the same subjects' 'frequency of association' hierarchies. They therefore determine the rank position which each subject's friendship 'choice' was found to have on his/her association hierarchy (rank of 1 to the most frequent companion) and then proceed to use a t-test across the group to test whether the friendship nominations have rankings significantly closer to 1 than would be expected by chance.

By applying the above method to the data in this study it was shown that the subjects' best friend nominations are significantly related to both of the observational measures of association used, 'Frequency of Association' and 'Frequency of Association with Social involvement'. In the case of the 'Frequency of Association' measure 6 perfect correspondences occurred (i.e. friendship nomination was also the same subject's most frequent companion), the two measures were significantly related at the .001 level, $t = 6.41$. 'Frequency of Association with Social Involvement' was also significantly related to friendship nomination at the .001 level, $t = 7.50$, and 4 perfect correspondences occurred. These results are in accordance with the findings of Smith and Delfosse, (1980) who also found a highly significant relationship between friendship nominations and observed patterns of association.

In order to select a single 'best friend' for each sample member it was decided to integrate all 3 of the above measures with equal weight. The following procedure was adopted:-

For each of the three measures, (1) Frequency of Association (2) Frequency of Association with Social involvement and (3) Interview choice, the top three individuals were selected and awarded points, (3) for first place, 2 for second and 1 for third. A sum total of points gained across the 3 measures was then calculated for each individual involved, and the one with the highest overall total declared 'best friend'. Perfect agreement on all 3 measures would therefore give the 'best friend' a total of 9 points - a maximum score of 3 points on one measure alone could not however produce a clear winner

if he/she did not also gain points on other measures also. The magnitude of the best friends total score is thus dependent on the extent to which the measures agree and can therefore be seen as an indication of the 'strength' of the friendship.

In this way a best friend was selected for each subject. Wherever a subject's best friend is referred to, it is the winner through application of this system that is indicated. Where a subject's most frequent companion is referred to, it is merely the first ranking peer on the 'frequency of association' variable that is being discussed. Results of the selection system are given in full in Appendix C.

Although a clear and distinct best friend does not necessarily emerge for all individuals, this system does at least indicate the peer most likely to be an individual's closest or strongest friend. On this basis it is possible to compare the content and quality of each individual's strongest relationship with that of his other relationships and also further compare the best friend relationships of some groups to those of others. In the case study analysis frequent comparisons are made between the subject's pattern of scoring in category stystems when interacting with the best friend and the equivalent pattern when with others. These subsamples of the subject's overall sample will be referred to as BESTFRIEND and OTHERS samples and they are produced by extracting all direct interaction with the bestfriend or, (in the case of SOCIAL INVOLVEMENT only), extracting all 30-second periods for which the best friend was a member of the group.

B: CASE STUDY PROCEDURE

(i) Format of Case Study Analysis,

The layout of each individual case study conforms to a standard format which sequentially discusses six different types of results. At all stages the analyses concerned are seeking to provide evidence relevant to the assessment of the child's friendship pattern, particularly the strength of his/her best friendship.

A full set of all the sample member's results on each analysis (grouped according to analysis) are presented as Appendix D. In the case studies frequent reference is made to the individual's relative position on the various variables involved - on all variables the 14 sample members were ranked, assigning rank 1 to the highest positive score.

In many of these analyses scores are presented in percentage form in order to clearly show patterns of distribution between categories. This also facilitates the direct comparison of distribution patterns across the whole range of sample members in respect of any particular category system and allows the ranking of sample members according to the proportion of any particular category which they show. Some problems arise however in situations where the percentages are based on small sample sizes. This is most evident in the last section of analysis((6) CONTROLLING ACTS) where in each case a sample of controlling acts is distributed into two categories - in many cases the sample member concerned showed so few controlling acts overall as to make the percentages found in each category completely unreliable and therefore meaningless. Consequently, in all cases, the absolute figures on which percentage breakdowns are based are also presented as a table at the beginning of the relevant section of results. Unreliable percentage results are not discussed as evidence in the case studies or in their summaries presented in this chapter.

In each case study a number of statistical tests were performed on the data - these are briefly referred to in this section but they will be fully detailed in section (ii) Statistical Tests.

Details of the specific analyses carried out will now be given with discussion of their relevance to the assessment of the child's friendship pattern.

(1) PATTERN OF ASSOCIATION

At this stage the individual's frequency of association

with his peers was considered. The raw scores (in terms of the number of 30 second periods the child associated with each other peer) were converted into percentage form, and all those peers who were not in the target child's company for at least 10% of the sample time were eliminated. Those others who do reach or exceed this criterion are considered regular companions. A bar graph with regular companions along the x-axis and frequency of association along the y-axis was drawn. The top scoring peer on this measure is given the title of most frequent companion. Three pieces of information are then derived from the table of regular companions:-

(a) Frequency of Association with Best Friend:

Where a strong best friendship exists one would expect to find the target child's best friend, (as chosen by the best friend selection procedure), scoring highly on this measure and also scoring more highly than any other peer.

(b) Distinctness of Most Frequent Companion:

This measure expresses the difference between the score of the second most frequent companion and the score of the most frequent companion as a percentage of the score of the most frequent companion, and thus provides a measure of the relative gap between them. The result is of little interest if the target child's best friend is not also his most frequent companion, but where these two are the same it gives an indication of the degree to which the best friend is favoured as a companion over and above the child's other regular friends. A large score here indicates a large gap and thus perhaps a strong best friendship.

(c) Range of Companions:

The number of peers reaching the 10% frequency of association criterion is used as a measure of the breadth of the child's range of regular companions. Whilst some writers have tended to imply a negative correlation between strength of friendship and range of companions, (e.g. Waldrop & Halverson, 1975) such a relationship is not assumed here; rather these data will be used to test whether such a relationship does in fact exist.

(2) INTERVIEW DATA

Relevant information arising from the interview is introduced here and the results of the best friend selection procedure are discussed. The relative contributions of the three measures contributing to that procedure are considered and the confidence with which the best friend is selected can thus be assessed.

(3) SOCIAL INVOLVEMENT

(i) Overall; This section first presents the child's overall pattern of time spent in each of the categories in this system. The subject's scores for each of the seven categories are expressed as percentages of the total sample time. The 14 sample members are ranked on each of the 7 categories individually and so the subject's rankings are also discussed in this context.

(ii) Best Friend vs Others;

Here the subsample of periods during which the subject's best friend was noted as a group member are compared to the subsample of periods during which the best friend was not present, but a defined group was observed. In each condition scores are presented as percentages of the total of the relevant four category scores (PARALLEL + SOCIAL 1 + SOCIAL 2 + SOCIAL 3).

A strong shift towards higher social involvement in the company of the best friend might be considered evidence of a strong relationship or an attempt to develop a strong relationship by the subject or his best friend. Any such differences in the distribution of these BEST FRIEND and OTHERS samples were tested statistically.

(4) SOCIAL ACTS: CATEGORY SYSTEM ONE

(i) Absolute Amount

First the absolute number of Social Acts given and received by the subject(and his group ranking on these measures) are considered. The absolute number of social acts given to and received from the best friend are then given (with group rankings). Clearly a large score and high ranking on the BEST FRIEND measures is evidence of

a strong friendship, especially if found in the context of more moderate overall scores. An imbalance in favour of relatively more acts given to than received from the best friend might be considered evidence of an unreciprocated attraction on the part of the subject.

(ii) Relative Proportion of Major Categories;

The proportion of social acts assigned to each of the 4 major classes, (Friendly, Organising, Contrary and Annoying) are given (expressed as percentages), and ranks given for the subjects score on each of these categories. Acts Given and Acts Received are both treated in this way.

(iii) Best Friend vs. Others;

Comparison is then made of the proportional distribution of social acts between the 4 classes in BESTFRIEND and OTHERS samples. Scores are expressed as percentages, and both Acts Given and Acts Received are separately compared. Differences in distributions are tested statistically.

A swing towards more Friendly and less Contrary acts when with the best friend can be seen as evidence of the existence of a strong relationship or as unreciprocated 'special' friendliness. A particularly dramatic swing might be interpreted as a distinct effort by the subject to ingratiate him or herself to the best friend and make him/herself more attractive to the other.

(iv) Adaptive and (v) Counteradaptive Behaviour;

The subjects overall scores on the composite category 'Adaptive' acts (expressed as percentages of total acts Given or Received) are given along with group rankings. BESTFRIEND and OTHERS samples are then compared and, statistically tested for differing frequencies of occurence. Both Given and Received scores are treated separately in this way.

The same procedure is used to analyse 'counter-adaptive' acts.

A higher proportion of adaptive acts in the BEST FRIEND sample might be considered evidence of a relatively

strong friendship, especially if related to a higher frequency of socially sophisticated play. Alternatively it might be seen as 'ingratiating behaviour' towards an unreciprocating best friend. A lower frequency of counteradaptive acts with the best friend can be interpreted in a similar fashion.

(vi) Attention Seeking;

The subjects scores on the category Friendly Attention Given (as percentage of all acts Given) is discussed. A low score suggests a 'settled' pattern, such that the subject has a friend or set of friends who generally give him the amount of attention he seeks. The child pursuing an unreciprocated best friendship might be expected to show a higher level of attention seeking as he seeks to involve his bestfriend in a more frequent personal interaction.

(5) SOCIAL ACTS: CATEGORY SYSTEM TWO:

(i) Absolute Amount;

The Absolute number of 'category system two' acts Given and Received by the subject are given (with respective ranks), and then the absolute number of acts given to and received from the BEST FRIEND are also given (with ranks). These are discussed. Again high scores are interpreted as evidence of a strong best friend relationship.

(ii) Relative Proportions in Categories;

The Percentages of all category system two acts (Given or Received) which were assigned to each of the 4 categories are given, along with the subject's group ranking for each of these 4 scores. Results for Acts Given and Acts Received are presented separately.

(iii) Bestfriend vs others;

The distribution of social acts across the 4 categories in BESTFRIEND and OTHERS samples are compared. In particular the proportions found in the latter two categories, lead and follows, (which tend to account for the bulk of the data) are examined. Where appropriate, differences in the distribution of acts to these two categories in

the BESTFRIEND and OTHERS subsamples are statistically tested.

A clear swing towards more following and/or less leading behaviour when with the best friend can be interpreted as evidence of ingratiating behaviour and thus perhaps indicates either an unreciprocated best friendship or a reciprocated best friendship in which the subject is overshadowed by his partner.

(6) CONTROLLING ACTS

(i) Absolute Amount;

Absolute numbers of Controlling Acts Given and Received are presented with the relevant Group rankings for these scores. Absolute numbers Given to and Received from the BESTFRIEND are also given (with ranks).

(ii) Adaptive/dominating control;

The proportion of all the subject's controlling acts (expressed as percentages) assigned to each of these two categories are shown (with ranks). The distributions of the two subsamples BESTFRIEND and OTHERS are then compared and statistically tested for significant differences. A swing towards more Adaptive Control is interpreted as evidence of a more positive attitude to the BESTFRIEND and can thus be taken to indicate a reciprocated or an unreciprocated best friend pattern.

Each case study ends with a final section which draws together the evidence arising from the six sections of results. At this stage a decision is made as to whether or not the balance of evidence tends to place the individual into any of the three friendship pattern categories proposed.

An important feature of the case study analysis is that results of comparisons between an individual's BESTFRIEND and OTHERS samples are interpreted with due consideration for the child's general levels of the behaviours concerned. A child who generally shows a high level of adaptive behaviour overall cannot perhaps, be expected to show a high degree of favourtism to his

best friend on this measure, nor can a child who very rarely produces Contrary acts be expected to reduce his contrariness to any great extent. Thus different individuals can be assigned to the same friendship pattern type on the basis of differing, but to an extent equivalent, patterns of evidence.

BESTFRIEND/OTHERS differences must be interpreted with caution where small sample sizes are present. This problem tends to arise most often when considering pluralistic cases in which the child concerned interacts little with his best friend.

The results used in the case studies are presented in Appendix C with the individuals grouped according to variable. Within Appendix C, table 1 gives Pattern of Association results, tables 2 and 3 give Social Involvement results, tables 4 to 8 give Social Act Category System One results, tables 9 to 11 give Social Act Category System Two results and tables 12 and 13 give Controlling Acts results.

(ii) Statistical Tests;

Seventeen statistical tests were applied to the raw data of each case study unless the sample sizes involved rendered some of the tests inapplicable. In all cases the tests were looking for differences in the distribution of BESTFRIEND and OTHERS samples across two or three categories.

Where the data fall into a 3 x 2 table, the chi-square test is used, unless more than 20% of the cells have an expected frequency of less than five in which case the data are recast as a 2 x 2 table (Siegel, 1956). Where the data fall into a 2 x 2 table then the chi-square test is again always used unless the smallest cell frequency is less than 5 - where this is the case the Fisher exact probability was calculated for the distribution observed (Siegel, 1956). Where either sample consisted of no more than one case, then clearly no comparison could be made of distributions.

The seventeen types of statistical test used, with

the appropriate abbreviations which will henceforth be used to describe them, are as follows:-

(1) PARALLEL/SOCIAL 1 + SOCIAL 2, (PAR/SOC 1 + 2); A 2 x 2 test of SOCIAL INVOLVEMENT results. The BEST FRIEND and OTHERS samples are distributed across two categories, PARALLEL and SOCIAL 1 + 2 (a composite category created by summing the relevant SOCIAL 1 and SOCIAL 2 results).

(2) PARALLEL + SOCIAL 1/SOCIAL 2, (PAR + S1/S2); A 2 x 2 test of BESTFRIEND vs OTHERS samples, recasting the 3 categories into another combination by grouping the SOCIAL 1 category with PARALLEL.

(3) PARALLEL/SOCIAL 1/SOCIAL 2, (PAR/S1/S2); A 3 x 2 test of BESTFRIEND vs OTHERS samples, treating each of the categories PARALLEL, SOCIAL 1 and SOCIAL 2 separately.

(4) FRIENDLY/ORGANISING + CONTRARY + ANNOYING GIVEN, (F/ORG+C+ANN GV); A 2 x 2 test of Social acts category system one acts given. BESTFRIEND and OTHERS samples are compared across two categories, Friendly (F) and a composite category created by adding the scores for the 3 categories Organising, Contrary and Annoying.

(5) FRIENDLY + ORGANISING/CONTRARY + ANNOYING GIVEN, (F+ORG/C+ANN GV); A 2 x 2 test of Social acts category system one acts given. BESTFRIEND and OTHERS samples are compared across two composite categories, one the sum of Friendly plus Organising acts, the other the sum of Contrary plus Annoying acts.

(6) FRIENDLY/ORGANISING/CONTRARY+ANNOYING GIVEN, (F/ORG/C+ANN GV); A 3 x 2 test of category system one acts given: compares BESTFRIEND and OTHERS samples across 3 categories (i) Friendly (ii) Organising and (iii) Contrary plus Annoying.

(7) FRIENDLY/ORGANISING+CONTRARY+ANNOYING RECEIVED, (F/ORG+C+ANN RV);

(8) FRIENDLY+ORGANISING/CONTRARY+ANNOYING RECEIVED, (F+ORG/C+ANN RV); and

(9) FRIENDLY/ORGANISING/CONTRARY+ANNOYING RECEIVED, (F/ORG/C+ANN RV); are equivalent to tests (4), (5) and

(6) respectively but are carried out on the appropriate samples of category system one acts received from the BESTFRIEND and OTHERS.

(10) ADAPTIVE ACTS GIVEN, (ADPV GV); A 2 x 2 test of the proportion of adaptive acts amongst all social category system one acts given. This test therefore compares BEST FRIEND and OTHERS samples across 2 categories, adaptive acts and all other acts.

(11) ADAPTIVE ACTS RECEIVED, (ADPV RV); A 2 x 2 test, equivalent to test (10) above but applied to the BEST FRIEND and OTHERS samples of category system one acts received.

(12) COUNTERADAPTIVE ACTS GIVEN, (CADPV GV); A 2 x 2 test of the proportion of Counteradaptive Acts given amongst category system one acts. It compares BEST FRIEND and OTHERS samples across 2 categories - counter-adaptive acts and all other acts.

(13) COUNTERADAPTIVE ACTS RECEIVED, (CADPV RV); A 2 x 2 test, equivalent to test (12) above but applied to the BESTFRIEND and OTHERS samples of category system one acts received.

(14) LEADING ACTS/FOLLOWING ACTS GIVEN,(LEAD/FOLLOW GV); A 2 x 2 test of SOCIAL ACTS CATEGORY SYSTEM TWO acts given. It compares distribution of BESTFRIEND and OTHERS samples across two categories within system two, category III, following acts and category IV leading acts.

(15) LEADING ACTS/FOLLOWING ACTS RECEIVED, (LEAD/FOLLOW RV); A 2 x 2 test equivalent to (14) above but applied to the BESTFRIEND and OTHERS samples of category system two acts received.

(16) ADAPTIVE/DOMINATING CONTROL GIVEN, (AC/DC GV): A 2 x 2 test of CONTROLLING acts given; compares distribution of BESTFRIEND and OTHERS samples across the two categories ADAPTIVE CONTROL and DOMINATING CONTROL.

(17) ADAPTIVE/DOMINATING CONTROL RECEIVED, (AC/DC RV); A 2 x 2 test equivalent to (16) above but applied to the BESTFRIEND and OTHERS Samples of controlling acts received.

A matrix of results for all individuals on all the above tests is presented in Appendix E. In the following summaries of case study results, the results of chi-square tests are given in terms of significance levels whilst those of Fisher exact probability tests are given as exact probabilities.

C. RESULTS

A summary of the results of each case study will now be presented. These will describe the major pieces of evidence which have led to the assignation of their respective cases to particular friendship pattern types. All statistically significant results are referred to as a matter of course, the test concerned being identified by its abbreviated label.

The full case studies each run to a considerable length. An example of a full case study is provided in Appendix F. The example chosen is of one of the more difficult assignations in the sample, Donald. It therefore demonstrates how the wide range of data available on an individual could be used to make reasonably secure assignations where the initial signs are unclear or contradictory.

All three of the predicted Friendship pattern types were found to be present in the sample. The subjects are ordered according to the friendship pattern to which they have been assigned. Thus case studies 1 to 3 were assigned to the Reciprocated Bestfriend group, cases 4-8 were assigned to the unreciprocated Bestfriend group and cases 9-14 were assigned to the Pluralistic group.

I RECIPROCATED BEST FRIENDSHIP GROUP (RECIP BF)

1. ROY (STUART)

Roy's case study shows clear evidence of a strongly reciprocated best friendship. He associates with Stuart exceptionally frequently and together they show a particularly high level of social involvement in play (PAR/S1/S2, sig. at 0.001). Whilst Roy is generally very positive in his behaviour to all others, in interaction with Stuart

he gives a yet smaller proportion of counteradaptive acts (CADPV GV sig. at .05) and shows a stronger tendency towards Adaptive rather than dominating control (AC/DC GV. sig. at .01). Roy showed clear awareness of his special friendship with Stuart during interview and through spontaneous remarks during play. When other companions were present in the group, Roy (who was invariably the leader) tended to concentrate his attention on Stuart rather than others (e.g. Will, see case study (4)). Initially Stuart had been chosen as Roy's best friend with a maximum score of 9 points on the selection procedure.

2. STUART (ROY)

The above relationship was also viewed from the other perspective. Again there is clear evidence of a strongly reciprocated best friendship, although the extent of their association was probably reduced by the absence of Roy from the nursery for at least a quarter of Stuart's sample time. There is evidence of a higher level of social involvement in their play together (PAR/S1/S2 sig. at .001) and whilst Stuart does not markedly alter his behaviour to Roy he receives from him a much greater degree of consideration (ADPV RV sig. at .001), (AC/DC RV, p=.01). Stuart does show a tendency towards giving more adaptive control to Roy (AC/DC GV p=.055).

Stuart also receives a higher proportion of leading acts from Roy (LEAD/FOLLOW RV sig. at .001), a reflection of the balance of control of their relationship. Stuart is normally friendly but unassertive whilst Roy, a highly adaptive and socially skilled individual, likes to be the leader. Within their play together they clearly adopt these complementary roles.

Stuart named Roy as his best friend in interview and made many remarks confirming this in the course of interaction. He was noted twice to be waiting for Roy

to finish another activity so they might subsequently play together again. Initially Roy had been selected as Stuart's best friend with a maximum score of 9 points on the selection procedure.

3. JEMIMA (CAMILLA)

Jemima 's case study also throws evidence of a distinct and reciprocated best friendship, but whereas Roy and Stuart are both rather sociable children in their own right, Jemima on the other hand, seems to be rather socially inactive when not with her best friend, Camilla. The contrast between the quality of Jemima 's play with others and that with her best friend is quite marked, although she does not associate with Camilla with particularly high absolute frequency (PAR/SOC 1 + 2 sig. at 0.025, PAR/S1/S2 sig. at 0.05). Jemima seems to rely on Camilla for social play opportunities. Camilla is very distinctly Jemima 's most frequent companion.

Whilst Camilla's commitment to the relationship may not be as strong as Jemima 's, in that she probably associates more widely outwith it (unfortunately Camilla is not a sample member, being too young for inclusion), nonetheless she participates fully in social play with Jemima (usually just the two of them together) and tends to lead it (Lead/Follow RV p=.087). Jemima who normally shows a fair amount of contrary and organising behaviour participates in a particularly friendly manner (F/ORG+C+ANN sig. at 0.05).

Jemima clearly named Camilla as her best friend in interview. Initially Camilla had been selected as Jemima 's best friend with a maximum score of 9 points on the selection procedure.

II UNRECIPROCATED BEST FRIEND GROUP (UNRECIP BF)

(4) WILL (ROY)

Will associates frequently (although not distinctly) with Roy, yet is involved in surprisingly little social interaction with him, bearing in mind that Roy is by far the most socially active child in the sample. Will seems to tag on to the periphery of Roy's play with

others and, whilst Roy generally allows him to remain in the group, he does not encourage Will to participate in the way that he does encourage his own best friend Stuart. Thus despite a low overall level of social involvement, Will does not do significantly better in this respect when with his best friend.

Nonetheless Will's behaviour changes markedly with Roy. From being a normally rather contrary and organising child he becomes relatively acquiescient, showing less counteradaptive behaviour (CADPV GV p=.005), a greater proportion of Friendly acts (F/ORG+C+ANN GV sig. at .01, F + ORG/C+ANN GV p=.015) and a greater proportion of following acts (LEAD/FOLLOW GV p=.04). From Roy Will receives more adaptive behaviour (ADPV RV sig. at.01), and a higher proportion of leading acts (LEAD/FOLLOW RV, sig. at .01) - these results reflect Roy's exceptionally high general level of adaptive and leading acts.

The conclusion that Will's special friendliness towards Roy is unreciprocated, is supported by the analysis of Roy's friendship pattern, which showed that Roy maintains a strong reciprocated best friendship with Stuart.

Roy was initially selected as Will's BESTFRIEND with a score of 7 points on the selection procedure.

(5) JOANNE (HEATHER)

Joanne was very verbal about her friendships in interview and consistently asserted that Heather was her bestfriend. Heather, however, does not appear to be especially interested in Joanne (see case study (9), Heather).

Joanne associates with Heather and Emily (Heather's best friend) more frequently than anyone else (but not very frequently in absolute terms). When with Heather she interacts at a significantly higher level of social involvement (PAR+S1/S2 sig. at .001, PAR/S1/S2, sig. at .001). She is always very Friendly and adaptive, so there is little room for improvement with Heather, but whilst Joanne normally gives a large proportion of

leading acts, it is clear that she takes a back seat when playing with Heather - she swings towards giving more following acts and receives a higher proportion of leading acts. (LEAD/FOLLOW GV sig. at .05, LEAD/FOLLOW RV sig. at .001). She also receives a high proportion of Organising acts from Heather - this is reflected in the test F/ORG + C + ANN RV (sig. at .05, more ORG + C + ANN with BF), also when with Heather she gives few controlling acts whilst receiving many, the reverse of her pattern when with others. Joanne 's behaviour overall seems to be a clear attempt to ingratiate herself to Heather , but Heather pays at least as much attention to the new girl Emily - Joanne was very rarely seen to be playing with Heather with no others also involved.

Initially Heather was chosen as Joanne 's best-friend with a score of 7 points on the selection procedure.

(6) DONALD (SANDY)

Donald chose Sandy as his best friend in interview and does associate with him in social play groups fairly often. When with Sandy, DOnald is more socially involved, (PAR/SOC 1 + 2, sig. at .05), mainly at the SOCIAL 1 level (the level at which Sandy is exceptionally frequently involved with others).

Donald also shows a preferential swing in his behaviour towards Sandy showing a smaller proportion of Contrary and Annoying acts (F/ORG + C + ANN GV sig. at .001, F + ORG/C + ANN GV, p=.002) and a lower level of counteradaptive acts (CADPV GV p=.05). He is repressing the 'bad' side of his behaviour (which is normally quite marked) rather than enhancing his normally low level of adaptiveness.

Donald 's overall frequency of association with Sandy is very low and they exchange few social acts together. In particular Donald receives very few social acts from Sandy . There is no evidence to suggest that Sandy reciprocates Donald's special attentions, either in the pattern of acts Donald receives from Sandy or in Sandy 's case study (No. 10). The relationship is clearly

one-sided.

(7) MANDY (WILL)

Mandy nominated Will as her best friend in interview and indeed Will is found to be her most frequent companion. He was initially selected as her best friend with 8 points. Mandy, who is normally a very hostile and bossy child, shows a considerable reduction in this sort of behaviour when interacting with Will. She gives Will a lower proportion of Counteradaptive acts (CADPV GV p=.042) and shifts towards giving following rather than leading acts (LEAD/FOLLOW GV sig. at .05). She clearly acts preferentially towards him.

However the amount of social interaction in which Mandy and Will directly engage is small, and there is no evidence of enhanced social involvement with her best friend. Furthermore there is no evidence either here, or in Will's case study (4) to suggest that Will reciprocates Mandy's special friendliness to any significant extent. Their relationship is quite one-sided.

(8) EDWARD (DONALD)

Unfortunately Edward left the nursery before he could be interviewed, however Donald is distinctly his most frequent companion and there is evidence that Edward is actively making an effort to be specially friendly towards him.

Edward's pattern of social involvement with his best friend is unusual - he shows significantly more SOCIAL ONE involvement and significantly less SOCIAL TWO involvement with Donald (PAR/SOC 1 + 2, more SOC_{1+2} with BF sig. at .05, PAR+S1/S2, more PAR+S1 with BF p=.002, PAR/S1/S2 sig. at .001). Donald is less inclined to participate in co-operative play with Edward than others are, but happy to play at a co-ordinated level (social 1).

Edward is rather unsuccessful socially, having extremely few regular companions, yet he is very Friendly and adaptive, and very rarely hostile or contrary. In interaction with Donald he is yet more highly adaptive

(ADPV GV sig. at .025). Donald lets Edward set the pace when they do play together, so Edward receives a smaller proportion of Organising and Contrary acts (F/ORG+C+ANN RV, sig. at .025, F + ORG/C + ANN RV sig. at .05) and Leading acts (LEAD/FOLLOW RV, sig. at .025) from him. It is also Edward who usually initiates contact with Donald and tries to keep their interaction going.

Case study 6 also indicated that Donald does not reciprocate the special attention Edward pays to him - he in turn shows evidence of an unreciprocated best friendship towards Sandy.

III PLURALISTIC GROUP

(9) HEATHER

Emily was selected as Heather's bestfriend although Heather did not mention her in interview. Emily is distinctly Heather's most frequent companion, and indeed Heather is significantly more likely to be involved at the SOCIAL 1 (although not SOCIAL 2), level when with her (PAR/SOC 1+2, sig. at .01, PAR/S1/S2 sig. at .025).

However Heather shows no special features in her behaviour towards Emily, although she does receive more adaptiveness from her than she does from others (ADPV RV sig. at .025). Emily, who arrived at the nursery after data collection had begun, was clearly making active efforts to become one of Heather's regular friends. Heather is a very bossy and tempermental child - it was clear that Emily experienced this and yet was at pains to maintain play bouts with Heather (hence the high adaptiveness). Being the eldest sample member, and one who could participate (albeit bossily) in interesting play, Heather was in demand (e.g. Case study (5) Joanne) despite her domineering manner. She did not however seem to actively single out any of her playmates for preferential treatment. Emily was selected as her best friend on the selection procedure with 6 points.

(10) SANDY

Sandy showed no evidence of a strong friendship preference. Alexander and Edward tied for the position of his best friend candidate (5 points each), but Alexander was chosen as he exchanged a greater number of social acts with Sandy. Despite this the number exchanged between Sandy and his best friend Alexander is small. The only significant difference in the behaviour Sandy gives to or receives from his best friend is a tendency for Sandy not to give leading acts to Alexander (LEAD/FOLLOW GV, p=.016), although he generally gives few anyway.

Sandy tends to be socially involved at the SOCIAL 2 level more often when Alexander is in the group although this is balanced by a lower proportion of SOCIAL 1 involvement. Bearing in mind however, that they directly exchange few social acts, this seems to reflect their common interest in particular types of group play (usually quite rowdy fantasy play such as 'monsters' or 'daleks'), rather than close co-operation between the two of them. They are both members of a group which frequently plays together, when the activity gets more sophisticated they both tend to be involved.

Sandy did not mention Alexander in interview.

(11) DAVID

Rowena, David's little sister, was initially selected as David's best friend with 6 points - she followed him around constantly and thus came first on the frequency of association measure. She also managed to win the 'frequency of association with social involvement' measure by almost always being around when David was socially involved with other people. However in the whole sample only one social act was exchanged between them and David made no mention of her in interview. Under these circumstances Sandy was declared to be David's best friend - he was a close second on the selection procedure (5 points) and was nominated first by David .

Nevertheless there was no evidence of any distinct relationship between David and Sandy. All statistical tests of the behaviour David gave to and received from his best friend were non significant. They exchanged few social acts overall. David was actually more likely to be operating at the PARALLEL level of social involvement and less likely to be operating at the SOCIAL 2 level when with Sandy PAR/SOC 1+2, more PAR with BF sig. at .01, PAR+S1/S2, less S2 with BF p=.0005, PAR/S1/S2 sig. at .01). When in the same group as Sandy, David tends to be a very peripheral member.

(12) GRETA

In Greta's case the initial best friend selection procedure showed a complete lack of consistency between the three measures involved. Thus 3 individuals tied for best friend, Donald, Heather and Edward. Edward was chosen as Greta exchanged more social interaction with him than with either of the other two (her interaction with her nominated best friend Donald was almost entirely hostile). In absolute terms Greta still exchanged very few social acts with her best friend.

All statistical tests comparing Bestfriend/Others distributions of social acts were insignificant. She does show a tendency towards higher levels of social involvement when with her bestfriend (PAR/SOC1 +2, sig. at .01, PAR+S1/S2, sig. at .001), however she is actually in his company very rarely, and bearing in mind that they exchange few social acts, it was clear that they did not engage in a high level of intense co-operation together. All other evidence confirmed this.

(13) ANDREW

Malcolm, Andrew's identical twin brother, was selected as his best friend with a score of 6 points on the selection procedure. Andrew nominated Malcolm in interview and associated with him more frequently than anyone else, yet they were very rarely involved in social play together and they exchanged remarkably few

Social acts (GV,2, RV,1). No meaningful comparison of social acts in the BF/Others samples was possible as a result. Andrew was significantly less often operating at the Social 1 or 2 levels of involvement when with Malcolm (PAR/SOC 1+2, less SOC 1+2 with BF, sig. at -01).

There appears to be no real substance to their relationship in terms of social interaction. Both are very unsociable characters who seem happy to play alone or at best in parallel with others. Their association together is probably attributable to a combination of two factors, their extreme familiarity with each other as twins, and their common activity preferences (involving the minimum of social interaction).

(14) MALCOLM

Andrew was in turn selected as Malcolm's best friend, here with a maximum total of 9 points on the selection procedure. In this sample they have associated more frequently, but their relationship looks only slightly more substantive in terms of social interaction.

They exchange few social acts, and none of the statistical tests showed significant differences. The conclusions in this case study are therefore similar to those of the last - the evidence does not indicate the presence of an actual or desired friendship of any substance.

Having dealt individually with all fourteen sample members, the overall pattern of grouping across the three friendship pattern types is now given in Table 2. In the next chapter the validity of this grouping will be assessed, using techniques of multivariate analysis.

RECIP BF	UNRECIP BF	PLURAL
ROY	WILL	HEATHER
STUART	JOANNE	SANDY
JEMIMA	DONALD	DAVID
	MANDY	GRETA
	EDWARD	ANDREW
		PATRICK

TABLE 2: ASSIGNATION OF SAMPLE MEMBER TO FRIENDSHIP PATTERN GROUPS BY CASE STUDY ANALYSIS

TABLE 2a: SUMMARY TABLE OF TYPES OF EVIDENCE WHICH COULD CONTRIBUTE TO THE ASSIGNATION OF SAMPLE MEMBERS TO EACH OF THE FRIENDSHIP PATTERN CATEGORIES

	RECIPBF	UNRECIPBF	PLURAL
Freq. of Assoc. with BF	High		Low
Distinctness of most frequent companion if also BF	High		Low
Interview data	BF nominated 1st	BF nom. 1st	BF not nom 1st
	BF talked about much	BF talked about much	or talked about
Social Involvement	higher social involv. w. BF	higher social involv. w. BF	social involv. same w. all
Category System One	much interaction w. BF	relatively more acts given than received w. BF	little interaction w. BF
	swing to more F./less Con. acts w. BF, Gv. and Rv.	swing to more F./less Con. acts w. BF, G. but not Rv.	no difference BF/others
	swing to more adaptive or less counter-adaptive w. BF, Gv. and Rv.	swing to more adaptive or less counter-adaptive w. BF, Gv. but not Rv.	no difference BF/others
Category System Two	much interaction w. BF	relatively more acts Gv. than Rv. w. BF	little interaction w. BF
	swing to more follow/less lead acts w. BF, Gv. and Rv.	swing to more follow/less lead acts w. BF, Gv. not Rv.	no difference BF/others
Controlling Acts	swing towards adaptive control w. BF, Gv. and Rv.	swing towards adaptive control w. BF, Gv. not Rv.	no difference BF/others

CHAPTER FOUR

MULTIVARIATE ANALYSIS OF FRIENDSHIP PATTERNS

Multivariate analyses were carried out on the case study data base for two reasons. Firstly in order to provide a check on the validity of the group assignations produced by the case study analysis, and secondly to identify those variables which best discriminate amongst the three groups, Reciprocated best friend, Unreciprocated best friend and Pluralistic.

Two different types of multivariate analysis were performed on the data, discriminant analysis and cluster analysis. Discriminant analysis was chosen to serve both of the functions described above, whilst the cluster analysis was intended to serve primarily as an alternative method of checking the validity of group assignations.

Discriminant analysis requires a pre-defined grouping pattern of cases, (here it was the pattern of association of individuals to the three friendship pattern groups resulting from the case study analysis), and a number of variables on which each case has a score. It then proceeds by a series of repetitive steps. All the variables in the set of variables are tested for their ability to discriminate between the three groups of cases, then the best discriminator (assuming that there are significantly discriminating variables present) is entered into classification functions. After removing the 'entered' variable from the set, and having robbed all remaining variables of their covariance with the entered variable, the process is repeated. It comes to a halt when none of the variables left in the set have enough discriminating power to meet a predetermined criterion.

Classification functions are thus produced, each consisting of weightings for scores on the entered variables and a constant. Ignoring the original grouping of individuals which was defined beforehand, the classification functions are then used to assign each case to the group it best fits, and a new grouping is created. Discrepancies between these two classifications indicate cases which have been initially miscategorised unless there is enough other evidence (of a type which could not be analysed multivariately) supporting the original assignation. This analysis thus tested the reliability of the original case

case study classification of individuals (at least in relation to the variables it could operate on), and also indicates those variables which are the best independent discriminators of friendship pattern type. The significance of the variables which were picked out in this way can then be interpreted.

Cluster analysis produces independent classification groupings of the individuals according to similarity of their score patterns across all the variables initially fed in. This analysis also proceeds stepwise. Starting with all individuals being treated as separate clusters, it tests all possible pair combinations, selects the most similar, and fuses these two into one new cluster. At each stage the next most similar pair of clusters are fixed until finally only two clusters remain. A full description of each stage of the cluster analysis allows comparison of its groupings and its measures of inter-individual similarity (on the basis of all the variables it has been given),with the groupings resulting from the case study analysis, thus potentially providing another way of checking them.

A: DATA; VARIABLES USED IN MULTIVARIATE ANALYSIS

A set of twenty five variables was used as the basis for both types of multivariate analysis. Many of these were variables from the case study analysis which were used here in exactly the same form, others were derivations of case study variables. All were chosen as being relevant to the description of friendship patterns, with the great majority of them relating to the child's behaviour when with his best friend (either in comparison to his behaviour with others or measured directly).

It was not immediately obvious which variables would prove most useful in terms of distinguishing groupings across the whole sample. In the case studies many variables had produced relevant evidence for one or two individuals, but not for others who had been assigned to the same group. Consequently, in these analyses a wide variety of potentially useful variables were included. Some variables are of mixed reliability across the whole group because their scores are derived from varying

sample sizes, according to the amount of a certain type of behaviour the individual displayed. In this way the measure of the shift in the adaptive control/dominating control balance between BEST FRIEND and OTHERS samples is more or less reliable for each individual, depending on how many controlling acts the BESTFRIEND sample includes. Low sample sizes can introduce a lot of 'noise' to a variable by producing inflated scores and may thus reduce the contribution it might have made to multivariate classification.

The twenty five variables used will now be briefly described with details of how they were derived, where relevant, and with the abbreviations which they were given for the analysis. (These abbreviations will be used to name them in the text thereafter). A longer title from which the abbreviation is derived is also given in each case, in brackets.

(1) NOCOMP (Number of companions): This is the 'range of companions' measure used in the case study analysis ((1) PATTERN OF ASSOCIATION measure (c)), measuring the number of regular companions the child was observed to have. It was included primarily in order to see how it was related to the other measures - from the case study analysis I expected this relationship to be slight.

(2) ASSBF (Association with best friend): This is the 'frequency of association with best friend' measure from the case study analysis ((1) PATTERN OF ASSOCIATION measure (a)), giving the number of 30-second periods the child was observed to be in the company of his best friend.

(3) SASSBF (Social association with best friend): A measure of the number of 30-second periods the subject was observed to be in the company of his best friend whilst also participating in the groups' activity at a social level of involvement. This measure was also used in the best friend selection procedure.

(4) PARBF/O (Parallel bestfriend vs. others): This measure is a coefficient derived as follows - the numerator is the proportion of the BESTFRIEND sample for which the subject was scored as participating at a parallel level of social involvement, and the denominator is the equivalent figure for the OTHERS sample.

A result well below unity indicates a strong tendency to show less parallel (and thus more social) involvement when with the bestfriend.

(5) ACCBFS (Accuracy of bestfriend nomination in terms of social association): This variable measures the accuracy of the subject's best friend nomination in interview, in terms of association at a social level of involvement. The subject's score is the rank position of the peer whom he chose as best friend, on the 'frequency of association with social involvement' measure (used in the best friend selection procedure, see Chapter 3). Thus a score of 1 indicates perfect correspondence, whilst increasing scores represent increasing disparity between choice and the measure of association with social involvement.

(6) ACCBFASS (Accuracy of best friend nomination in terms of association): This measure is derived in the same way as variable (5), but here the subject's best friend choice is related to his 'frequency of association' measure - this measure has no requirements in respect of the social level at which the subject is involved. This variable thus measures the accuracy of the subject's friend choice in terms of simple frequency of association.

(7) SAXBF (Social acts exchanged with best friend): This variable is based on the number of social acts exchanged with the best friend and so is derived by adding the absolute number of social acts (category system one) given to the best friend and the equivalent number of acts received from him.

(8) SAGVBF (Social acts given to best friend): The absolute number of social acts (category system one) given to the best friend.

(9) SARVBF (Social acts received from best friend): The absolute number of social acts (category system one) received from the best friend.

(10) RATESABF (Rate of giving social acts to best friend): For this variable the rate of giving social acts (category system one) to best friend is derived by dividing the individual's score on variable (8) above, by the number of 30-second periods for which he was observed to be in the company of his

best friend.

(11) FRBF/O (Friendly acts, best friend vs. others): The percentage of category system one acts scored as 'Friendly' in the OTHERS sample is subtracted from the equivalent percentage derived from the BESTFRIEND sample - a positive figure therefore means the subjects gives a greater proportion of friendly acts to his best friend than to others.

(12) ORGBF/O (Organising acts, bestfriend vs. others): An equivalent measure for the percentage of organising acts the subject gives to his best friend and to others, derived in the same way as measure (11) above - a positive figure means a higher proportion of organising acts to the best friend.

(13) CONTBF/O (Contrary acts, best friend vs. others): Equivalent measure to (11) and (12) above but comparing the proportion of contrary acts given to the best friend and to others.

(14) SUMDIFF (Sum of all differences): The individual's scores on (11), (12) and (13) above are summed, disregarding the sign, producing a measure of the absolute magnitude of the discrepancy between the BESTFRIEND and OTHERS samples in their distribution of social acts between the three classes, friendly, organising and contrary.

(15) CADBF/O (Counteradaptive acts, best friend vs. others): This measure is derived by subtracting the percentage of counteradaptive acts in the OTHERS sample from the percentage of counteradaptive acts in the BESTFRIEND sample - a high negative figure indicates a strong tendency to give a lesser proportion of counteradaptive acts to the best friend.

(16) CADBF (Counteradaptive acts to best friend): This is a straight measure of the number of counteradaptive acts the subject gave to the 'best friend' expressed as a percentage of the total number of category system one acts given to the best friend.

(17) SYS2XBF (System two social acts exchanged with best friend): A measure for the number of category system two social acts exchanged between the subject and his best friend, obtained by adding the absolute number of system two acts

given to the best friend to the absolute number of system two acts received from the best friend.

(18) SYS2GVBF (System two social acts given to best friend): The absolute number of category system two social acts given to the best friend.

(19) RTSYS2BF (Rate of giving system two social acts to best friend): The absolute number of category system two social acts given to the best friend, divided by the number of 30-second periods the sample member was in his best friend's company.

(20) L/FOLBF/O (Balance of leading and following acts given, best friend vs. others): For both the BESTFRIEND and OTHERS samples a lead/follow balance score was separately derived by subtracting the percentage of following acts in the sample concerned from the equivalent percentage of leading acts (a positive score indicating a tendency to lead rather than follow, a negative vice versa). The OTHERS balance score was then subtracted from the BESTFRIEND balance score to produce the final score for this variable. A negative score thus indicates a swing towards a relatively less assertive pattern (i.e. a relatively lower proportion of leading, and higher proportion of following) when with the best friend and a positive score indicates the opposite trend.

(21) CNTRLGV (controlling acts given): The absolute number of controlling acts given overall to all peers.

(22) RCNTRLBF (Rate of giving controlling acts to best friend): Scores for this variable are derived by dividing the absolute number of controlling acts the subject gives to his best friend by the number of 30-second periods the subject was observed to be in his best friend's company.

(23) CNTRLBF/OA (Rate of giving controlling acts, best friend in comparison with overall): To derive this measure the subject's overall rate of giving controlling acts is first calculated by dividing the absolute number of controlling acts he gave overall by the number of 30-second periods in which he was scored as being in the company of any peer (this includes his best friend). The overall rate of giving controlling acts is then subtracted from the rate of giving controlling acts

to the best friend, (variable (22) above), to give a score for this variable. A negative score thus indicates a tendency to give a lower proportion of controlling acts when interacting with the best friend.

(24) AC/DCBF/OA (Adaptive/dominating control balance, best friend in comparison with overall): For the BESTFRIEND sample, a rate of giving AC acts (number of AC acts given, divided by number of 30-second periods in the company of his best friend), and a rate of giving DC acts were calculated. The DC figure was then subtracted from the AC figure to give a 'difference between AC and DC rates' figure, which would be positive if the subject showed a higher rate of adaptive rather than dominating control. The same procedure was followed with the subject's overall sample thus yielding an 'overall AC/DC balance' figure. The 'overall' figure was finally subtracted from the BESTFRIEND figure to provide the subject's score for this measure. A positive figure indicates that the subject swings towards giving a more adaptive pattern of controlling acts when interacting with his best friend.

(25) FATT (Attention-seeking acts given): For this variable the total number of directly attention seeking acts (social acts category system one, category no.5, Friendly attention) displayed by the subject is expressed as a percentage of all category system one acts given. This variable had not been used as a major source of evidence in the case study classification process but it was included here because a strong relationship was suspected between friendship pattern and attention seeking behaviour. In particular it had been noticed that sample members assigned to the Unreciprocated best friendship group tended to show high proportions of attention seeking acts in their behaviour, perhaps reflecting insecurity or dissatisfaction with their current social relationships.

The scores of all fourteen sample members on the twenty five variables described above made up the data matrix for the discriminant and cluster analysis. On two variables ((5) ACCBFS and (6) ACCBFASS) a score was missing for Edward - these variables both rely on interview data which were not available

for him. In both cases he was therefore assigned the average score of the thirteen other sample members.

B: PROCEDURE

Both the discriminant and cluster analyses were carried out on an ICL Series 2900 computer, through the Edinburgh Multi Access System (EMAS 2900). Programmes from statistical software packages were used in both cases.

(i) Discriminant Analysis:

For the discriminant analysis, Programme P7M ("Stepwise Discriminant Analysis") from the BMDP statistical software package (1981 version) was used. This programme has a standard default value of 4.0 as the F-to-enter criterion for entering a variable into the classification functions (F-to-enter statistic is equivalent to a one way analysis of variance ANOVA). On the first run, two variables were entered but the next narrowly failed to reach the criterion level at the third step, (F-to-enter 3.93). The F-to-enter criterion value was therefore adjusted to 3.8 so that this third variable could be picked up.

(ii) Cluster Analysis:

To perform the cluster analysis the CLUSTAN package was used as described in the CLUSTAN user manual (Wishart, 1978). This package allows the user to select from a number of separate procedures which can be run within a single programme, activated by the CLUSTAN driver. Two different clustering procedures were used - (i) Procedure HIERARCHY - a method of hierarchical fusion using Ward's method to compute similarities - this method seeks tight 'minimum variance' clusters. (ii) Procedure DENSITY - a method which seeks 'natural' clusters which do not necessarily have to be tight. It seeks disjoint regions of high density according to a probabilistic model. This combination of clustering procedures represents a cross section of the methods available and is basically equivalent to the sequence of analysis recommended by Wishart (1978) for small populations. Procedures RESULT and TREE were used to print out the results.

C: RESULTS

(i) Discriminant Analysis:

The discriminant analysis (F-to-enter, 3.8) stopped after three steps, and thus entered three variables into the classification functions.

At Step 1 variable 9 was entered, SARVBF (No. of Social Acts (category system one) received from Best Friend), F-to-enter 13.73 (equivalent to 'F' statistic, 13.73, 2 and 11 d.f., n.s.).

At Step 2 variable 25 was entered, FATT (Percentage of Friendly Attention acts amongst all category system one acts given), F-to-enter 8.36. (approx. 'F' statistic 10.285, 4 and 20 d.f., sig. at .01).

At Step 3 variable 5 was entered ACCBFS (Accuracy of Best Friend nomination in terms of observed frequency of 'socially involved' association), F-to-enter 3.93. (approx. 'F' statistic 9.554, 6 and 18 d.f., sig. at .01).

The F-matrix presented in Table 3 shows the degree to which the final classification functions discriminate between each of the possible pairs of groups. It is clear there that all three groups are discriminated from each other equally well - all the F-values are significant at the .01 level (3 and 9 d.f.). At Stage 1 however, the equivalent F-matrix showed that SARVBF, whilst distinguishing strongly between RECIP BF and the other two groups, did not distinguish between UNRECIP BF and PLURAL at all. The distinctness of UNRECIP BF and PLURAL improved towards its final state (Table 3) with the addition of each of the other two entered variables.

	RECIP BF	UNRECIP BF
UNRECIP BF	9.47**	-
PLURAL	9.96**	9.30**

** sig. at .01 level, 3 and 9 d.f.

TABLE 3: DISCRIMINANT ANALYSIS; MATRIX OF F-VALUES TESTING DISCRIMINATING POWER BETWEEN EACH PAIR OF GROUPS

Using the classification functions thus produced the

programme independently classified each individual. The resulting classification matrix is presented as Table 4 - it shows how well the programme's own classifications match those originally fed in.

ORIGINAL GROUP	PERCENT CORRECT	No. OF CASES NOW CLASSIFIED INTO GROUP		
		RECIP BF	UNRECIP BF	PLURAL
RECIP BF	100.0	3	0	0
UNRECIP BF	100.0	0	5	0
PLURAL	100.0	0	0	6

TABLE 4: DISCRIMINANT ANALYSIS; RECLASSIFICATION OF CASES COMPARED TO THEIR ORIGINAL ASSIGNATIONS

Thus the discriminant analysis agreed in all cases with the grouping of the sample members produced by the case study analysis.

The analysis also gives 'goodness of fit' estimates for each individual to all groups in the form of posterior probabilities. These are given in Table 5.

	POSTERIOR PROBABILITIES		
NAME	RECIP BF	UNRECIP BF	PLURAL
ROY	1.000	0.000	0.000
STUART	0.997	0.003	0.000
JEMIMA	0.827	0.003	0.170
WILL	0.003	0.553	0.445
JOANNE	0.000	1.000	0.000
DONALD	0.000	0.994	0.005
MANDY	0.000	1.000	0.000
EDWARD	0.000	1.000	0.000
HEATHER	0.002	0.000	0.998
SANDY	0.000	0.001	0.999
DAVID	0.000	0.091	0.909
GRETA	0.000	0.001	0.999
ANDREW	0.000	0.004	0.996
MALCOLM	0.028	0.033	0.939

TABLE 5: POSTERIOR PROBABILITIES OF CASES MEMBERSHIP OF EACH GRO

Table 5 shows that the only borderline case in the sample was Will , who shows a degree of affinity with the pluralistic group. Nonetheless the balance of probabilities still clearly calls for Will's assignation to the Unreciprocated best friend group. Jemima also shows a slight affinity with the pluralistic group, but in her case the probabilities overwhelmingly call for a Reciprocated best friend assignation.

The discriminant analysis also produces two canonical variables which can be used to describe the relative dispersion of individuals and groups in two dimensional space. In this case the two canonical variables account for approximately equal proportions of the total dispersion. Each has an associated formula consisting of loadings for each of the three 'entered' variables and a constant which is added to their sum. These formulae are used to derive the scores of individual cases.

The dispersion of the sample members plotted in the two dimensional space described by the canonical variables is shown in Figure 1.

Details of the scoring pattern of each of the groups on the three 'entered' variables are given in Table 6.

	RECIP BF		UNRECIP BF		PLURAL	
	MEAN	SD	MEAN	SD	MEAN	SD
SARVBF	80.67	38.53	18.60	8.20	12.83	12.75
FATT	2.59	2.34	6.43	1.93	1.81	1.73
ACCBFS	1.00	0.00	2.94	1.08	6.75	3.66

TABLE 6: SCORING PATTERNS OF EACH GROUP ON THE 'ENTERED' VARIABLES

The relative magnitude of the scores of each group on the variables SARVBF and ACCBFS are ordered predictably, in accordance with the way in which these variables were interpreted in the case study analysis. Thus the RECIP BF group receive the most social acts from the best friend and show the most accurate correspondence between their friendship nominations and pattem of (social) association, whilst the UNRECIP BF group are intermediate, and the PLURAL group are lowest in both respects. On the variable FATT, the UNRECIP BF

loadings on variables

	SARVBF	ACCBFS	FATT	constant
can. var. 1	.0415	-.2414	.0830	-.5196
can. var. 2	.0275	.2263	-.5370	.1970

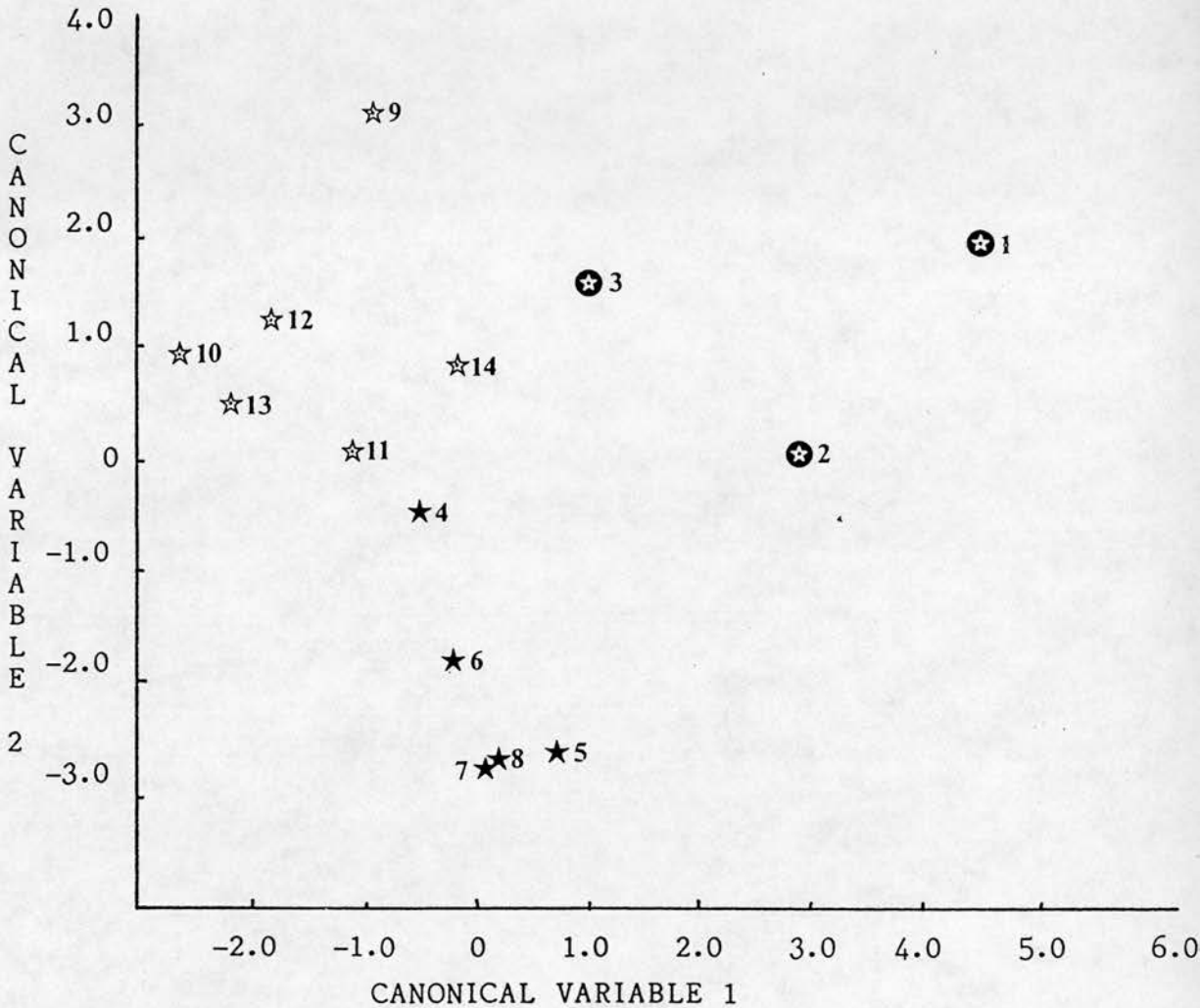


FIGURE 1: DISCRIMINANT ANALYSIS I: DISPERSION OF SAMPLE MEMBERS ON CANONICAL VARIABLES

Cases labelled by case number; (1) Roy , (2) Stuart (3) Jemima , (4) Will, (5) Joanne , (6) Donald , (7) Mandy , (8) Edward , (9) Heather, (10) Sandy , (11) David , (12) Greta , (13) Andrew , (14) Malcolm.

Friendship pattern group indicated by symbol:

RECIP BF, UNRECIP BF, PLURAL

group score most highly, whilst the RECIP BF group still betters the PLURALs.

The Intercorrelations of these 3 variables are given in Table 7.

	SARVBF	FATT
FATT	-0.0291	
ACCBFS	-0.4561	-0.1255

TABLE 7: INTERCORRELATIONS OF ENTERED VARIABLES

These results show that none of the variables intercorrelate strongly. There is however a moderate negative correlation between SARVBF and ACCBFS which just fails to reach significance at the .05 level (one-tailed, 12 d.f.), such that large numbers of social acts received from the best friend tend to be associated with more accurate correspondence between perceived and observed best friends. The variable FATT is quite independent of the other two.

(ii) Cluster Analysis:

Procedure RESULT produced an intercorrelation matrix for the 25 variables used. All but one of the significant correlations found (.01 level, 12 d.f.) were associated with two separate clumps of intercorrelation which were entirely predictable.

The first of these groups, and by far the largest, is associated with all the variables measuring the absolute amount or rate of exchange of social acts between the subject and his/her best friend. Thus variables (7) SAXBF, (8) SAGVBF, (9) SARVBF, (10) RATESABF, (17) SYS2XBF, (18) SYS2GVBF, (19) RTSYS2BF, (21) CNTRLGV and (22) RCNTRLBF all tend to intercorrelate positively with each other. Also correlating strongly with this group are the two frequency of association measures, variables (2) ASSBF and (3) SASSBF, and to a lesser extent variable (4) PARBF/O which correlates negatively, indicating that larger swings towards social involvement with the best friend tend to go along with larger scores on the above group of variables.

The second clump of intercorrelation relates to measures

of the shifting pattern of social acts when with the best friend with respect to category system one acts. Thus variable (11) FRBF/O correlates negatively with variables (12) ORGBF/O and (13) CONTBF/O. However variable (13) CONTBF/O is the only one of these three which correlates significantly with (14) SUMDIFF. Variable (15) CADBF/O correlates highly with (13) CONTBF/O, to a lesser extent with (14) SUMDIFF, and also with (16) CADBF. This last correlation shows that those who swing most strongly towards a reduction in their proportion of counteradaptive acts given when with their best friend, tend to give fewer counteradaptive acts to their best friend than do other sample members.

The one remaining significant correlation between variables whose measures are not directly related, occurs between variable (6) ACCBFASS and variable (20) L/FOLBF/O. Here a correlation of .6716 shows a tendency for those who are more accurate in nominating their best friend (using pure association) as the criterion) to swing towards a balance of more following acts and fewer leading acts when with the best friend.

Two of the three variables chosen by the discriminant analysis (ACCBFS and FATT) show no significant correlations with any of the other variables in the set. ACCBFS does not even correlate significantly with the other perceived/observed best friend measure ACCBFASS (.3968). SARVBF on the other hand is a member of the larger group of intercorrelating variables, and so correlates significantly with variables (2) ASSBF, (3) SASSBF, (4) PARBF/O, (7) SAXBF, (8) SAGVBF, (10) RATESABF, (17) SYS2XBF, (18) SYS2GVBF, (19) RTSYS2BF, (21) CONTRLGV and (22) RCNTRLBF. It is clear that of these three variables SARVBF, through its association with a large number of the other variables, is likely to have much more influence on the clustering procedure than either of the other two.

Variable (1) NOCOMP, which was included primarily to determine its correlation with the other variables, was not found to correlate significantly with any of the other variables.

The results of the clustering procedures will now be

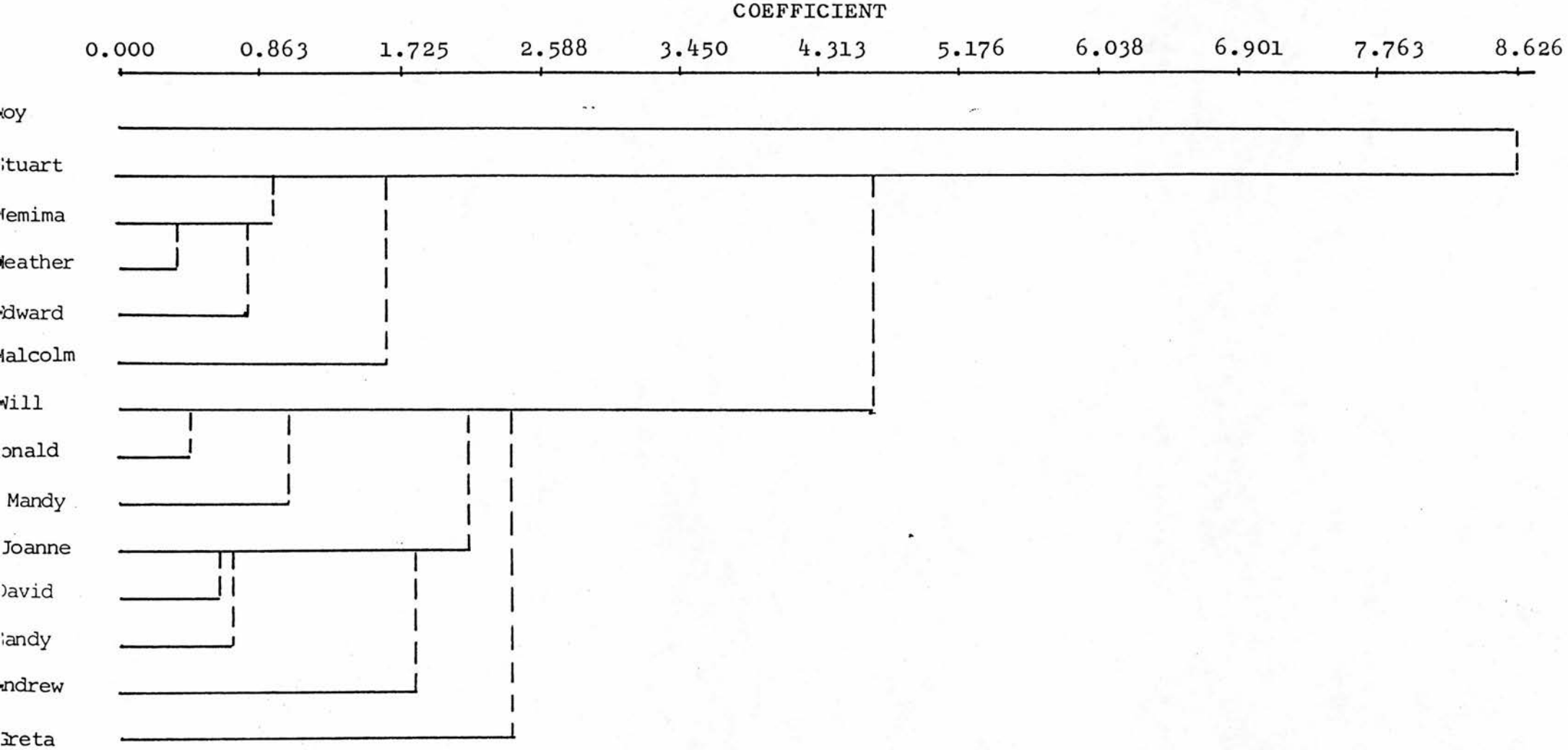
given. Procedure RESULT produces two main cluster diagnostics for each cluster it describes. For each variable it gives the F-ratio (cluster variance divided by sample variance), and the T-value (cluster mean minus sample mean, all divided by sample standard deviation). Small F-ratios indicate variables on which the cluster members have comparatively low variation, whilst T-values substantially different from zero indicate variables for which the cluster mean is substantially different from the overall sample mean. A combination of both indicates a variable which may be measuring a distinct characteristic of the members of that cluster. Here a low F-ratio will be taken to be one lower than 0.3, and a large T-value to be one greater than 0.8 (disregarding the sign).

The results of procedure HIERARCHY are given in dendrogram form in Figure 2. The procedure clearly found Roy to be unique. This was due to his exceptionally high scores on all the variables relating to the amount and rate of social acts exchanged with the best friend.

Three other cases were not integrated into clusters until relatively late in the procedure, Greta , Andrew and Malcolm. In Greta's case there are exceptionally high scores on variables 6 (ACCBFASS) and 20 (L/FOLBF/O) which are partly responsible. Andrew and Malcolm were shown to have quite unusual patterns of interaction with their best friends (each other) in the case study analysis, and it seems that these are reflected here in the cluster analysis. If we look at the clustering pattern before these last four members become integrated, there are three separate clusters which include all the remaining ten sample members by a coefficient of 1.029.

The first of these clusters consists of Stuart , Jemima , Heather and Edward. It thus includes two of the RECIP BF group and one from each of the others. After Roy , these individuals are the 4 next highest scorers on all the variables measuring the amount and rate of exchange of social acts with the best friend, that is variables (7) SAXBF, (8) SAGVBF, (9) SARVBF, (10) RATESABF, (17) SYS2XBF, (18) SYS2GVBF, (19) RTSYS2BF, (21) CNTRLGV and (22) RCNTRLBF. This cluster's

FIGURE 2: CLUSTER ANALYSIS, PROCEDURE HIERARCHY
DENDROGRAM OF FUSION POINTS



mean on these measures is not however dramatically above the sample mean for most of these variables on account of the contribution made to the overall sample by the exceptionally high-scoring Roy. There are two variables on which this cluster does show the combination of a large T-value and low F-ratio, variable 23, RCNTRLBF/OA and variable 19, RTSYS2BF. This cluster's consistently high rate of giving system two social acts to their best friends reflects their overall high level of best friend interaction, as just discussed. They also show relatively high scores on the RCNTRLBF/OA variable, each consistently tending to show a slightly enhanced rate of giving controlling acts when with the best friend, whereas a depressed rate more usually results.

The second cluster found comprises of Will, Donald and Mandy, all assigned to the UNRECIP BF group by the case study analysis. Compared to the first cluster this group all tend to show lower scores on the variables measuring the absolute amount of interaction exchanged. This cluster shows a combination of large T-value and low F-ratio on three variables, all measuring BF/Others swings in the pattern of their social acts, variable (13) CONTBF/O, variable (15) CADBF/O and variable (20) L/FOLBF/O. They can therefore be characterised by showing large swings towards giving much fewer contrary and fewer counteradaptive acts when dealing with the best friend, and similarly showing large swings in the Lead/Follow balance towards a greater emphasis on Following when with the best friend.

The third cluster comprises of Joanne , Sandy and David. In this case there is only one variable for which the cluster diagnostics show a large T-value together with a low F-ratio, variable 23 RCNTRLBF/OA. The members of this group tend to show a relatively large drop in the rate of giving controlling acts when interacting with their best friend. On none of the other variables, however, do this group show consistently extreme patterns of scoring. Sandy and David were assigned to the pluralistic group in the case study analysis whilst Joanne went to the unreciprocated best friend group.

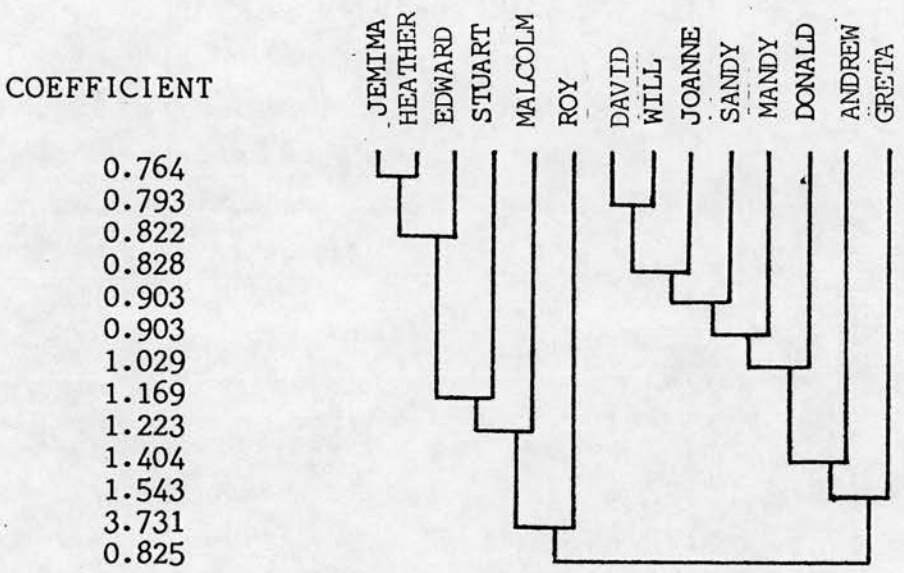


FIGURE 3: CLUSTER ANALYSIS, PROCEDURE DENSITY: DENDROGRAM OF FUSION POINTS.

Procedure DENSITY produced a clustering pattern which is similar in many respects, but which fails to distinguish between the last two of the three main clusters produced by HIERARCHY. Figure 3 shows the results in dendrogram form. Again a cluster consisting of Jemima , Heather , Edward and Stuart appears, although Stuart joins it slightly later. Here Roy is integrated at a considerably lower coefficient than in HIERARCHY, but is still far away from the rest. Greta and Andrew are again clear outliers, although in this analysis Malcolm seems closer to the first cluster (to which he is eventually joined in both procedures).

The major difference between these results and those of the HIERARCHY procedure is that the two separate clusters consisting of Will, Donald and Mandy , and of Joanne, David and Sandy, which were produced by procedure HIERARCHY, are here quite indistinguishable. Their members are joined together to form one distinct cluster.

DENSITY indicates then that HIERARCHY's second and third clusters are perhaps less distinct from each other than is the first cluster from all the rest.

D: DISCUSSION

The results of the discriminant analysis provided a good source of validation for the groupings arrived at by case study analysis. The patternof assignation of individuals to groups produced by its classification functions is in total agreement with that of the case study analysis.

The three variables which were found to provide the best discriminating power between groups, independently of each other, are all of quite different natures.

The first, SARVBF (social acts received from the best friend), was found to be one of a group of 9 variables which intercorrelate highly with each other, the other variables in the set also being measures of the amount or rate of exchange of social acts with the best friend. SARVBF also correlates with variables (3) SASSBF and (4) PARBF/O, measures relating to the extent of social involvement the subject has with his best

friend (these two variables tend to correlate significantly with all the other variables in the larger set). It is significant that, from this large set of related variables, it was the one relating only to acts received from the best friend that proved to be the best discriminator. At Step 1 SARVBF won with an F-to-enter value of 13.734, whilst the related variable (10) RATESABF came second with 9.741. SARVBF did not however distinguish between the PLURAL and UNRECIP BF groups who both receive similarly low levels of response from their best friends. Thus it seems that the RECIP BF group are indeed distinguished by the reciprocal nature of their relationships. The most important difference between this group and the others lies not in the actions of the child towards his best friend (at least in so far as those are measured by the variables involved), but rather in the response of the best friend to the child's actions, even in terms of a rather crude measure. Nonetheless many of the other variables in the large inter-correlating set did show considerable discriminating power. As well as variable (10) RATESABF, variables (7) SAXBF, (8) SAGVBF, (17) SYS2XBF, (18) SYS2GVBF, (19) RTSYS2BF, (3) SASSBF and (4) PARBF/O all showed F-to-enter values above the criterion of 3.8 before SARVBF was entered. After SARVBF had been entered none of these variables had significant discriminating power left.

The third variable entered in the discriminant analysis, (5) ACCBFS, like those discussed above, had been used as an important source of evidence in the case study analysis. The results of this analysis show that it has a large independent contribution to make. Indeed ACCBFS does not correlate significantly with any of the other variables in the set. It is surprising perhaps that it does not even correlate significantly with ACCBFASS. The fact that it does not do so, together with the extremely low discriminating power which ACCBFASS was seen to have (Step 0, F-to-enter 0.986), suggests that children's friendship nominations must be at least compared to measures of the extent to which they become involved in social activities with their friends, if we want to discover more about their

relationships with them. Even the variable which directly measures frequency of association with the best friend did not have significant discriminating power at the start of the discriminant analysis (F-to-enter 3.072).

The other variable entered, (25) FATT (Step 1, F-to-enter 8.362), was not directly used as evidence in the case studies, although a strong association with the UNRECIP BF group was noted. Whereas on the other two variables, the groups are ordered with the RECIP BF group at one extreme, the PLURAL group at the other and the UNRECIP BF group in between, on this variable it is the UNRECIP BF and PLURAL groups which are polarised, with the RECIP BF group between. The finding that sample members with an UNRECIP BF pattern of friendship tend to give a particularly high proportion of attention seeking acts overall can probably best be interpreted as an indication of the insecurity of their positions in the social structure. Whilst the other two groups have relatively settled, stable patterns of friendship, albeit of very contrasting types, the UNRECIP BF group are apparently seeking to create new friendships for themselves but appear to be failing to do so. In addition to attracting and maintaining the attention of those others with whom they would like to be friends, they have other companions too, with whom they must still keep in favour. To an extent the attention-seeking behaviour of the UNRECIP BF group may also reflect a consistent aspect of the character or temperament of the type of child which comes to have an UNRECIP BF friendship pattern. The case study analysis did not point to any such general consistency in the behaviour of the UNRECIP BF group, but this question will be addressed more specifically in the chapters which go on to consider the interaction styles of individuals in comparison to their friendship patterns (Chapters 6 and 7).

The results of the Cluster Analysis did not provide such good support for the case study groupings, but the reasons for this become apparent if the intercorrelations of the best discriminating variables with all the other variables in the set are taken into account. Cluster analysis does not make any

discrimination between more or less important variables so where there is a large set of intercorrelating variables referring to an underlying dimension, then the dimension which these variables all measure will then assume much greater importance than a dimension represented by only one variable. Thus the variable SARVBF which has significant correlations with ten others which all relate to the amount of rate of exchange of social acts with the best friend, will seem to have much more influence than either of the two other discriminating variables, ACCBFS and FATT, neither of which have significant correlations with any of the other variables in the set. Relatively speaking their influence will be swamped.

Thus procedures DENSITY and HIERARCHY consistently separated off a group of high scorers on measures of the amount or rate of social interaction exchanged with best friend, and consistently failed to integrate the one exceptionally high scorer on these measures until a very high coefficient was reached. The high scoring cluster included two of the three members of the RECIP BF group, Jemima and Stuart (the third member being the exceptionally highly scoring Roy). The two other children in the high scoring cluster were Edward and Heather, the most socially active members of the UNRECIP BF and PLURAL groups respectively (in interaction with their best friends).

The two other clusters distinguished by procedure HIERARCHY were indistinguishable in the DENSITY procedure, but one of them is of some interest , consisting of three members of the UNRECIP BF group. This cluster, consisting of Will, Donald and Mandy, was characterised by a large swing towards giving much less contrary and counteradaptive behaviour, and a much greater tendency to follow rather than lead when interacting with the best friend. Such swings were used in the case studies as evidence of an UNRECIP BF pattern of friendship, and their importance there is thus confirmed by HIERARCHY's results to some extent. It was pointed out in the case study analysis however, that evidence of that sort could not be expected in all potential UNRECIP BF cases. Individuals

who habitually show small amounts of these behaviours (and a high bias towards following) cannot be expected to show such large swings on these BF/Others measures. The two UNRECIP BFs who did not show such swings are found in other clusters.

The third cluster given by HIERARCHY includes two PLURAL cases, Sandy and David, and one case from the UNRECIP BF group, Joanne , but as a cluster they show few distinctive characteristics. Three other Pluralistic cases were found to be relatively difficult to integrate with any other cluster.

Thus the cluster analysis showed most clearly that the friendship pattern groupings are not equally distinct across the whole set of variables. On the contrary it appears that only a few of these variables can distinguish clearly between the groups independently of each other. That is not to say that many of the other variables may not be able to provide evidence which might be relevant to an individual's assignation in the context of a detailed analysis of his social behaviour using many other sources of evidence, but friendship patterns clearly do not emerge clearly from an indiscriminate analysis of a large group of variables relating to the child's behaviour with the best friend.

The two multivariate analyses reported in this chapter were intended to indicate which features of the samples' behaviour show the most consistent variation between friendship pattern groups, and indeed how far such consistent variation exists.

In the preceding chapter, the behaviour of each of the sample members was independently examined and they were then assigned to friendship pattern groups on the basis of the balance of evidence, evidence which could come from a large number of variables. In that process it was not necessary for all the members of any particular friendship pattern group to show the same pattern of

behaviour across all the variables - different patterns of evidence across the variables could result in assignation to the same group (within limits).

In this chapter evidence has been sought of consistent patterns of scoring on variables which characterise all the members of particular friendship pattern groups and distinguish them from others. For this purpose a set of variables was constructed which was derived from the main elements in the case study analysis. As far as was possible, all the measures which had been used in the case studies as possible sources of evidence relevant to friendship patterns were brought into this analysis. Some evidence, of course, like qualitative data from interviews could not be turned into a quantitative variable satisfactorily.

The discriminant analysis specifically sought out variables which distinguished the friendship pattern groups from each other (across all sample members), and it did find such variables. The nature of the few particularly important variables which were selected out of a wide range, and the groups' characteristic patterns of scoring on these variables, are both congruent with the author's initial model which makes certain basic distinctions between the friendship patterns proposed. Demonstration that a small group of appropriate variables can be identified which consistently discriminate between the groups across all individuals, and that re-assignation of the sample members on the basis of these variables alone results in no differences in the assignation pattern, represent as strong a confirmation of the original friendship pattern categorisation as could be provided by the discriminant analysis procedure. On the basis of the three important variables thus identified it would be possible, in future, to assign individuals to these friendship pattern groups in a more economical fashion.

Stronger support for the friendship pattern typology could theoretically have resulted from cluster analysis as this technique has no predisposition to seek particular groupings. Cluster analysis of this data set did not distinguish the three groups however. The fact that it did not do so was explained by the pattern of inter-correlations within the data set and the fact (demonstrated by the discriminant analysis) that only a few of these variables consistently distinguish the groups across the whole sample. Nonetheless the cluster analysis served another useful purpose - it showed that sub-groups of sample members could be identified within friendship pattern types. In particular, it showed that a group of the UNRECIP BF children behave similarly across the whole set of variables. Furthermore, the cluster diagnostics which this procedure provides showed how this sub-group could best be characterised. These findings will be shown to be of significance in the future analysis of the interaction between friendship pattern types and general interaction style.

Overall it is concluded, therefore, that the friendship pattern groups show distinctive patterns of scoring on some measures across the whole sample, but that they do not vary consistently across the whole set of variables used. Sub-groups within friendship pattern types do appear to show consistent characteristics across the whole variable set however.

Finally then, the assignation of individuals to frienship pattern groups will be reaffirmed in Table 8 together with an indication of the groups scoring pattern on the most 'discriminating' variables.

VARIABLE	RECIP BF ROY STUART JEMIMA	UNRECIP BF WILL JOANNE DONALD MANDY EDWARD	PLURAL HEATHER SANDY DAVID GRETA ANDREW MALCOLM
SARVBF	HIGH	LOW	LOW
FATT	MODERATE	HIGH	LOW
ACCBFS	LOW	MODERATE	HIGH

(ACCBFS: High score indicates poor accuracy of nomination)

TABLE 8: FINAL PATTERN OF GROUPING OF SAMPLE MEMBERS ACCORDING THE FRIENDSHIP PATTERN AND SCORING PATTERN OF GROUPS ON DISCRIMINATING VARIABLES

CHAPTER FIVE

FRIENDSHIP PATTERNS CONSIDERED IN RELATION TO AGE, SEX AND INDIVIDUAL DIFFERENCES IN GENERAL SOCIAL BEHAVIOUR

This chapter will begin by drawing together the results of the case study and multivariate analyses to produce brief descriptions of each type of friendship pattern in terms of its major characteristics. Associations will then be sought between these friendship pattern types and two types of variables, structural variables (sex and age) and variables relating to the overall quantity and quality of the child's participation in social interaction. Finally the details of the interaction style typologies of Manning and Montagner will be considered - the distinction between difficult and well-adjusted behavioural styles will be identified in both models in preparation for a full assessment of the sample members in those terms.

A: MAJOR CHARACTERISTICS OF FRIENDSHIP PATTERNS

(i) The Reciprocated Best Friendship Group (RECIP BF)

Members of the RECIP BF group tend to have one special friend with whom they associate frequently (although not necessarily extremely frequently). Their best friend nominations correspond extremely well with observational measures of association or 'socially involved' association. Many social acts are exchanged between the child and the best friend and it is particularly characteristic that they tend to receive many social acts from the best friend. Shifts between 'best friend' and 'others' interactions in the types of social acts exchanged are not marked but where they occur a more friendly or considerate orientation to the best friend is apparent. The most marked difference between the 'best friend' and 'others' interactions of RECIP BF children is in the level of social involvement of the subject - a swing towards the more sophisticated levels of social involvement is consistently observed. Thus the reciprocated best friendship clearly provides a context in which more sophisticated interaction can

regularly be engaged in by the child.

(ii) The Unreciprocated Best Friendship Group (UNRECIP BF)

The best friendships of this group are not strong or distinct in terms of association. Their friendship nominations, however, although not corresponding perfectly, do bear a moderately accurate relationship to hierarchies of association with social involvement. Moderate, or in some cases, quite low numbers of social acts are exchanged between the child and his best friend.

Shifts between 'best friend' and 'others' interactions in the types of social act given by the subject and his social involvement occur and seem to distinguish two subsets of individuals. One group of three individuals was picked out by the cluster analysis - they seem to shift their behaviour towards a reduction of its negative aspects (of which all of these children normally show considerable amounts) and they then become rather blandly acquiescent with their best friend. The other two individuals, on the other hand, both show higher frequencies of social involvement with their best friends - both appeared to be attempting (unsuccessfully) to develop more intense relationships with the best friend. All members of the UNRECIP BF group, however, show a high frequency of attention seeking amongst their social acts, indicating that they are all dissatisfied with the amount of attention they currently receive from others. It is likely then that these children would, in a sense, like their current pattern of relationships with others to be altered - whether or not they do generally develop other friendship patterns is not known.

(iii) Pluralistic Group (PLURAL)

The pluralistic group are distinguished by their lack of any special friendship preferences. The correspondence between their friendship nominations and their observed patterns of association with social involvement

tends to be very poor. Examination of the child's interactions with the peer most likely to represent the best friend tend to reveal no shifts in the child's behaviour towards this other - indeed usually it is found that rather few social acts are directly exchanged between them. Pluralistic children do not necessarily have large numbers of companions but, of those that they do have, none are particularly important.

B: RELATIONSHIPS BETWEEN FRIENDSHIP PATTERN AND AGE, SEX AND SOCIAL PARTICIPATION

(i) Age and Sex

The age and sex compositions of each of the three groups were compared. Table 9 gives the group means and standard deviations for age. No significant differences are found between the groups, thus it appears that within the age band 3:8 to 4:7 age has no effect on friendship patterns. The sex composition of the three groups similarly shows no differences between the groups:- RECIP BF, 2 male, 1 female; UNRECIP BF, 3 male, 2 female; PLURAL, 4 male, 2 female. Thus it appers that sex also has no major effect on friendship pattern, although the sample of girls is particularly small in this case. The reported tendency for girls to have more intensive friendships than boys at age $7\frac{1}{2}$ (Waldrop and Halverson, 1975) is not therefore apparent in this sample.

(ii) Social Participation

The three friendship pattern groups were compared on some general measures of social participation.

Table 9 gives group means and standard deviations for a general measure of sociability, the total number of social acts given during the sample.

	RECIP BF		UNRECIP BF		PLURAL	
	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AGE IN MONTHS	48	3.6	46.6	2.7	47.5	3.8
NO. SOCIAL ACTS GV	199.7	132.1	118.6	30.9	114.5	50.3
ALONE	46.3	44.4	44.2	22.5	53.3	30.6
UNOCCUPIED	11.3	6.7	12.6	8.7	10.8	7.0

TABLE 9: GROUP MEANS AND STANDARD DEVIATIONS FOR AGE, NUMBER OF SOCIAL ACTS GIVEN, AND NUMBER OF 30-SECOND PERIODS SPENT ALONE AND UNOCCUPIED

(t-tests between each possible pair of group means for each variable yielded no significant differences)

There are no significant differences between the groups on this measure. Whilst the mean of RECIP BF is considerably larger than those of the other two groups, its standard deviation is also very large - the mean was pulled up by one very extreme score (Roy). Thus it appears that sociability in these terms has no effect - the overall sociability of a child does not help predict his friendship pattern.

The last two variables on Table 9 are concerned with the amount of time the child spends outwith the company of peers. The first of these, ALONE, is a direct measure of the total number 30-second periods for which the subject was not observed to be a member of a group of peers. The second of these, UNOCCUPIED includes only those 30-second periods for which the child was alone and not occupied in any solitary play activity or interaction with the Teacher - it thus excludes any potentially constructive activities not involving peers. Neither of these variables revealed significant differences between the groups. These results are directly relevant to one potential explanation of the function of 'close' friendships. It might be argued that close friendships primarily serve to 'protect'

their participants from being left alone and are consequently formed by pairs of less popular children who have found it difficult to get into groups. The ALONE and UNOCCUPIED comparisons fail to support this hypothesis in two respects - firstly those children with close best friendships are no better off in terms of being unoccupied or alone, and secondly those who are potentially in the process of developing close friendships (UNRECIP BF group), are no worse off than others - they do not apper to have a problem in those terms. Thus it appears that the functions of close friendships and their attraction for children are more complex than simply the avoidance of being left out of social groups - they are more probably in the nature and qualities of the interactions themselves.

The three groups were then compared on the amount of time their members were observed at each of three levels of social involvement involving parallel, co-ordinated and co-operative interaction respectively. These are overall figures for each subjects total sample (i.e. not just best friend interaction). Those comparisons did yield significant results. Group means and standard deviations are given in table 10 and the results of t-tests comparing the means of possible pair of groups on each variable are given in table 11.

	RECIP BF		UNRECIP BF		PLURAL	
LEVEL	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
PARALLEL	54.3	23.1	108	26.9	103	13.4
SOCIAL 1	53.0	29.3	34.4	9.9	39.8	24.9
SOCIAL 2	58.7	52.2	14.0	13.2	11.7	9.5

TABLE 10: NUMBER OF 30 SECOND PERIODS SPENT AT EACH OF THREE SOCIAL INVOLVEMENT LEVELS FOR EACH GROUP, MEANS AND STANDARD DEVIATIONS

	RBF v UBF	RBF v PL	UBF v PL
PARALLEL	2.87* (UBF)	4.12** (PL)	0.40
SOCIAL 1	1.36	0.71	0.45
SOCIAL 2	1.91* (RBF)	2.29* (RBF)	0.42

*sig. at .05 ** sig. at .01 - the higher scoring group is indicated in brackets: RBF=RECIP BF, UBF=UNRECIP BF, PL=PLURAL

TABLE 11: t-VALUES FOR COMPARISON OF GROUP MEANS ON NUMBER OF 30-SECOND PERIODS AT EACH LEVEL OF SOCIAL INVOLVEMENT

The statistical results in Table 11 show a consistent pattern distinguishing the RECIP BF group from the other two. Compared to the PLURAL and UNRECIP BF group the RECIP BF sample members show lower frequencies of parallel and higher frequencies of co-operative social involvement. Whilst both of the other groups show sharply decreasing frequencies as one proceeds up to higher levels of social involvement, the RECIP BF group show roughly equally proportions of all three levels. The UNRECIP BF and PLURAL groups are indistinguishable. Thus it appears that the children who form close reciprocated friendships tend to be individuals who generally interact at more sophisticated levels in comparison to their peers.

This finding taken in conjunction with the earlier findings that RECIP BF children consistently interact at a more advanced level of social involvement with their best friends, strongly suggest that one of the main functions of the close friendship is to provide a context for interaction of a higher quality, particularly involving co-operation between the two individuals involved. These children find that their interaction with others tends to be of a lower quality. The case study results also suggested that some of the UNRECIP BF group may also be trying to develop more advanced interaction with their best friends. As a group however

they are not distinguishable from the PLURALISTIC children in terms of their overall level of social involvement. Individual differences within the UNRECIP BF group may be clouding the issue.

(iii) Summary

Analyses showed that the friendship pattern groups could not be distinguished from each other in terms of the age, sex or general sociability of their members. They could however be distinguished in terms of the quality of their members social interaction. The members of the reciprocated best friendship group are generally more sophisticated in their social interaction with peers. These results seem to indicate that close best friendships are not simply developed as a safeguard against being unable to find company but rather they seem to provide context in which more advanced levels of social interaction can be engaged in.

C: STYLES OF INTERACTION: THE TYPOLOGIES OF MANNING AND MONTAGNER

In the introduction to this thesis it was suggested that Manning's model of interaction styles (Manning et al, 1978 , Manning and Herrmann, 1981) provides a good basis for analysing individual differences in general social behaviour which can then be related to friendship patterns. The next two chapters will be concerned with assignation of the sample members to interaction styles and an analysis of the relationships between this pattern of assignation and the previous friendship pattern groupings.

This section will first consider the details of Manning's interaction styles and then introduce Montagner's typology, relating his categories to those of Manning's model. These two models, derived independently in different countries, are remarkably similar in detail although Montagner makes further distinctions within some of Manning's groups. Montagner's work thus provides consensual validation for the major distinctions made in Manning's model.

Manning's work was initially aimed at identifying different types of aggression amongst nursery school children interacting with peers. As an ethologist, Manning put much emphasis on a thorough initial descriptive phase, observing the child's aggressive behaviours in relation to the context in which they occur and in relation to the child's general social behaviour. After developing categories of hostile behaviour, Manning then typed a group of children according to the dominant type of hostility which they displayed. This initial categorisation produced four types:-

(a) Harrassment specialists or teasers:- These children tend to harrass or tease others often with no apparent provocation - they tend to be the most hostile or violent children in the nursery. Teasers will ruthlessly intimidate others in order to get success in disputes and often try to dominate others. They tend to show less

friendly and less interesting talk than other children.
(b) Games Specialists:- This group also show high totals of aggression but they are usually only violent in the game situations. In games they can be wild and 'out of control'. Outside of games they tend to be timid, acquiescent and untalkative.
(c) Specific Specialists:- This is the best adjusted group socially. They tend to be friendly and interesting in interaction and are often leaders. They show little hostility - where it does occur it is usually in relation to disputes over specific rights such as property, territory or roles.
(d) Teaser/Specifics:- The members of this group seem to be in between groups (a) and (c). They are not as violent as Teasers but they are very hostile and dominating in their attempts to organise others, so in groups they appear bossy and inconsiderate.

Manning went on to relate these styles of hostility to aspects of the child's home relationships and thus produced a theoretical model relating peer interaction styles to the frustration or satisfaction of interpersonal needs in the home (see Introduction). This more general typology has three categories each of which is devised from one of the styles of hostility (Manning and Herrmann, 1981):- (a) The Aggressive style, equivalent to the 'teasers' style, (b) The dependent style, equivalent to the 'games specialists' and (c) The well-adjusted style equivalent to the 'specific specialist' style. The 'teaser/specifics' are now seen as wavering between 'aggressive' and 'well-adjusted' styles. Two of these styles are said to be the result of maladaptive 'needs':- The 'aggressive' style is said to be the result of an excessive need to be assertive and to prove that one can do things of importance and have an effect on people - such children like to be boss and dictate the rules. The 'dependent' style is said to stem from an excessive need to be liked

and have others attracted towards oneself - such children draw attention to themselves by being extra wild in games or by pestering and hanging onto groups. Manning suggests that their thoughts are so dominated by this one-sided or self centred orientation that they less often do things which would make them more interesting to others, things involving the development of shared interests. The 'well-adjusted' style, as its name suggests is said to be the result of undistorted expression of the child's natural interest in interacting with others.

Montagner's work, undertaken at Besancon in France, began as an ethological study of non-verbal communicative behaviours in young children. After analysis of individual differences in the use of the communicative strategies, Montagner identified seven types of interaction style (Montagner, 1978). The typological system he produced coincides closely with that of Manning but with the addition of one extra variable, dominance (defined as success in disputes). Whilst Manning found her interaction styles to be relatively stable through the pre-school and into the early primary years, Montagner was able to identify some of the behaviours characteristic of his interaction styles at age 18-24 months. His interaction styles tend also to be stable through the pre-school years. Montagner's styles will now be described, grouped according to equivalence with Manning's types. This pattern of correspondence between Manning's and Montagner's categories has already been proposed by Manning and Herrmann (1981), and Sluckin (1981).

(a) Dominant-Aggressives and Dominated-Aggressives

Together these groups are equivalent to Manning's 'aggressives' or 'teasers'. Montagner describes dominant-aggressives as producing much spontaneous and unprovoked aggression - they are also extremely aggressive in conflict situations and are brusque and disorganised in their movements and gestures. They produce few friendly overtures towards others and are generally unresponsive

to the actions of their peers. The dominated-aggressives are considered to be similar in their style of interaction but they are less assertive and tend to be alone more often.

(b) Timid-dominated:

This group is equivalent to Manning's 'dependents' or 'games specialists'. These children tend to be friendly and affiliative in their behaviour towards others, but if provoked, threatened or upset at all, they become fearful and withdrawn. They also tend to indulge in unexpected bouts of violence, particularly after a period of isolation. They are very demanding of the teacher's attention (a feature also noticed amongst Manning's dependents). This type of child finds it very difficult to settle into a new group or class but once accepted their confidence is bolstered and they can appear to be well-adjusted leaders until threatened by conflict.

(c) Leaders and Dominated-resembling-Leaders:

These are Montagner's best adjusted groups and are equivalent to Manning's 'well-adjusted' or specific specialist' groups. Leaders produce lots of friendly and appeasing acts and tend to be interesting and innovative in play with others. They often organise play and are imitated and followed by others. They are rarely aggressive, almost never without a reason. The dominated-resembling-leader style is similar in all these respects but children of this type tend to be much less successful than leaders in competitions or disputes and they are less often followed or imitated.

(d) Fluctuating dominant aggressive/leader:

This group is exactly equivalent to Manning's group of teaser/specific specialists which were seen to show aspects of both styles. Montagner found this group to vary from one style to the other, often depending on the current state of their relationships at home, (Montagner et al., 1982).

(e) Withdrawn:

This interaction style is relatively rare and is not

therefore catered for in Manning's system. These children seem isolated and relatively aimless in the peer group. They often don't reply to solicitations from others. Some of these children gradually come out of their shell in the nursery, others stay isolated.

Thus it can be seen that Montagner's interaction styles seem to be closely equivalent to those of Manning but with an extra factor of dominance taken into account. If Manning's major distinction between well-adjusted and difficult interactions styles is considered, then Montagner's 'leaders' and 'dominated-resembling-leaders' are clearly the well-adjusted groups and his 'dominant aggressives', 'dominated-aggressives' and 'timid-dominated' groups are clearly 'difficult' groups. It was proposed in the Introduction to this thesis that differing predictions could be made about the friendship patterns of difficult and well-adjusted children on the basis of Manning's model. It was predicted that reciprocated best friendships would be developed exclusively by well-adjusted children whilst 'difficult' children would have no interest in close friendships. Well-adjusted children are said to be strongly motivated towards engaging in reciprocal interaction with peers for its own sake and the close friendship could provide a context in which interaction of that nature can develop. Aggressive and dependent children on the other hand seek to dominate and control other children or elicit approving attention from them, whilst giving others little in return. These aims can be temporarily satisfied by almost anyone in the nursery - furthermore, it seems likely that the difficult child's relatively aggressive and poorly adjusted behaviour would greatly interfere with any attempts to develop or maintain a close friendship, even if the motivation to do so were present.

To test these predictions it was proposed that the sample members whose friendship patterns have been analysed should be recategorised into difficult and well-adjusted groups according to behaviour style. It

is not practical in this study to distinguish between the aggressive and dependent styles - as I shall be assigning my sample members to interaction styles on the basis of a relatively limited range of data it would be difficult to confidently define the small groups which would result. The distinction between dependent and aggressive styles is also much harder to make than the distinction between the well-adjusted group and the two others. Grouping into the difficult and well-adjusted categories should also have the advantage of giving reasonably equal sizes of groups. In Manning's extended study (Manning et al, 1978) she found 57.1% of her sample members were well-adjusted and 42.9% difficult. The next chapter deals with the process of assigning sample members to these two interaction style categories.

CHAPTER SIX

ASSIGNATION OF SAMPLE MEMBERS TO INTERACTION STYLE GROUPINGS

A: SELECTION OF APPROPRIATE VARIABLES AND SAMPLE MEMBERS' SCORES

In order to seek patterns of association between friendship patterns and interaction styles, criteria were needed for assigning the sample members of this study to interaction style groups. As was indicated at the end of the last chapter, it was decided to categorise the sample members into 'difficult' and 'well-adjusted' groups, but not to attempt to assign them to sub-groups within the difficult category.

The distinction between the difficult and well-adjusted groups is clearly made in Montagner's and in both Manning's earlier and later typologies. It has been shown to relate to the use of both prosocial and antisocial behaviours. Of the distinctions made within these typologies it is clearly the most important - according to Manning and Herrmann (1981), it reflects major differences in the nature of the children's dominant aims and motives in interaction with peers. Observational data were collected for this study which could be expected to distinguish between these two general interaction styles with reasonable confidence.

Making the finer distinction between 'aggressives' (or harassment specialists) and 'dependents' (or games specialists) did not seem appropriate for two reasons. Firstly because very small numbers of sample members would result in each of these groups, thus making it very difficult to see patterns of interaction between interaction style groups and friendship patterns, and secondly because a much broader range of data, focusing specifically on aggressive incidents, would be needed if the aggressive/ dependent distinction were to be made confidently - the distinction between the well-adjusted and difficult children is much stronger (particularly with regard to prosocial behaviours. It would not have been possible to confidently identify these sub-groups on the basis of the observational

data base as it stood.

A typological procedure of classifying into two interaction style groups was preferred to rating individuals on a dimension of 'well-adjustedness' for two reasons. Firstly because the children's interaction styles were being assessed only on the basis of a limited number of the various aspects of behaviour which had been shown to distinguish between the groups in statistical comparison. It was not known whether or not the relative positions of individuals on such a pooled dimension as might be created, would give anything more than a very rough idea of 'well-adjustedness' in Manning's terms. The particular variables chosen might give insufficient weight to other important characteristics of well-adjusted or difficult behaviour to allow such a scaling. Secondly, Manning's model stresses qualitative differences in the social behaviour of the groups rather than differences of degree, thus making a categorical model appropriate to test its assertions. A weak degree of scaling did emerge from the interaction style assignation procedure however, in that 'strong' and 'weak' assignations emerged (these having ambiguous and unambiguous patterns of scoring on the variables respectively). These 'strong' and 'weak' sub-groups showed no differences in their distribution across the friendship pattern groups and so no important distinction is indicated between individuals who would be scaled more or less strongly 'well-adjusted' or 'difficult'.

The four particular measures used were chosen to provide a balanced sample of prosocial and antisocial aspects of interaction style, and also to provide as strong a degree of discriminating power as possible. To provide balance two prosocial and two antisocial measures were used, and to ensure good discriminating power the four measures used were chosen from amongst those variables which Manning had found to be most discriminating in her extended study (Manning 1982) - in that study all four of the variables used here discriminated between

the difficult and well-adjusted groups at the .001 level. These four variables are also statistically independent of the criteria upon which children were assigned to friendship pattern groups. All four are measures of the proportion of a child's total social acts (irrespective of with whom they might be interacting) accounted for by specific categories of social act. The variables on which the friendship patterns were based, on the other hand, were either absolute totals of amounts of interaction or association with one particular individual (the best friend) or were measures of the degree to which the child's social interaction altered or 'shifted' between 'best friend' and 'others' interactions.

The measures are: (i) Adaptive acts, (ii) Plus acts (acts which are designed to interest others), (iii) Minus acts (acts hostile to others) and (iv) Annoying acts. All four of these measures could be extracted from the original data base since Manning's categorisation system had been initially used to treat my raw data (see Chapter 2). Adaptive acts and annoying acts are separate categories or combinations of categories in social acts category system one whilst the plus and minus symbols represented two systems of optional

qualification which could be added to most social act categories.

After having selected relevant variables which could be accurately measured, the major problem remaining is that of determining where to draw the line between the well-adjusted and difficult groups. Whilst some cases at the extremes will clearly fall into one category or the other the borderline cases will be more ambiguous. In order to make reasonably confident assignations for these individuals their patterns of scoring on each variable will be examined and interpreted - in some cases relevant evidence from the overall data base may also be introduced (e.g. overall patterns of behaviour in case studies).

The distribution of the sample members on each variable will be interpreted in two ways. Firstly the sample members will be ranked on the variable concerned - a total 'sum of ranks' score can then be constructed after each variable has been dealt with. In order that the final sum of ranks score might produce a measure of 'adjustedness', the positive and the negative measures are ranked in opposite directions. Thus the rank of one is given to the highest frequency of positive behaviours (adaptive and plus acts) and to the lowest frequency of negative behaviours (minus and annoying acts) - high ranks and a numerically small sum of ranks total always indicate well-adjustedness. Secondly, from inspection of a graphical plot of the individual's scores, two groups of 'extreme scorers' are chosen, one group representing those scoring highly on the variable and one representing those scoring low - intermediate individual's are not included in either group. This system is most useful when dealing with variables which do not seem to have a smooth upward trend from lower to higher ranks but which show clumps of high or low scorers. On smoother variables the point at which the line is drawn between moderate and low or high scorers becomes highly arbitrary. This system could not therefore be used as a sole criterion for assignation - it will be used mainly to indicate contradictory patterns of results in

borderline cases which need further investigation. Each variable has a 'well-adjusted' and a 'difficult' extreme group, the well-adjusted ones being the high scorers on the positive variables and the low scorers on the negative variables (in terms of absolute scores not ranks).

Each measure will now be described in detail and the sample members scores and ranks given. A graphical plot of their distribution and the membership of the two extreme groupings will also be presented.

(i) Adaptive Acts:

An adaptive act is one in which the child clearly takes another's perspective into account and acts in such a way as would seem to be 'considerate' to the other in a benign sense. Manning has clearly shown that well-adjusted children show a much higher proportion of such acts than difficult children who tend only to show them rarely.

The definition of adaptiveness used in this study is not identical to that applied by Manning in her work. Manning uses a very rigorous definition - she only scores an act as adaptive if it is clearly tailored to take account of the recipient's interests and if there is also evidence that the recipient actively desired it. This precludes a sub-group of acts which may seem well intentioned by the actor but do not perfectly fit the other's requirements, acts which were scored as adaptive in my data. For example: two children both see a particularly attractive toy car as they sort through a heap of toys - John picks it up quickly and then grabs another shiny car and offers it to Michael saying 'here you are Michael, here's a red police car'. In this study John's speech would be scored as adaptive as it is clearly considerate towards the other, taking some account of his perspective. It does not, however precisely fulfil Michael's desires (his desire for the car John picked up), but it's rather an attempt to deflect them and keep the advantage for himself-it does not therefore meet Manning's requirements for an adaptive

act. To an extent such an act involves the subject manipulating the other child for his own benefit, although it nonetheless requires social skill.

Most types of adaptive act fall within both Manning's definition and my own, e.g. inviting, sharing, showing interest and approval in another (see definition of Friendly adaptive in Chapter 2), so my 'adaptiveness' measure can still be considered highly relevant to the difficult/well-adjusted distinction. It should be borne in mind that some children might boost their scores on my measure with a high level of 'manipulative' adaptiveness but low scorers would clearly be low regardless of which definition is applied. A systematic re-categorisation of my raw data was ruled out on the grounds of inadequate contextual information - to consistently make such subtle distinctions with any confidence one needs to be actually present in the real context or have a full sound and vision recording available.

Two categories of adaptive act were included in category system one, friendly adaptive and organising adaptive. For each sample members score on measure reported here, the numbers of social acts scored for each of these two categories (amongst social acts given) are added and then converted to a percentage of the total number of social acts (category system one) given by that individual. The resulting measure differs from the adaptive acts measure used in the case study analysis (Chapter 3) in that it does not include the categories Friendly initiate and Contrary plus. These were omitted in order to make this variable as equivalent as possible to Manning's adaptive measure which also involves adding the categories friendly adaptive and organising adaptive. Sample members scores and ranks are given in Table 12.

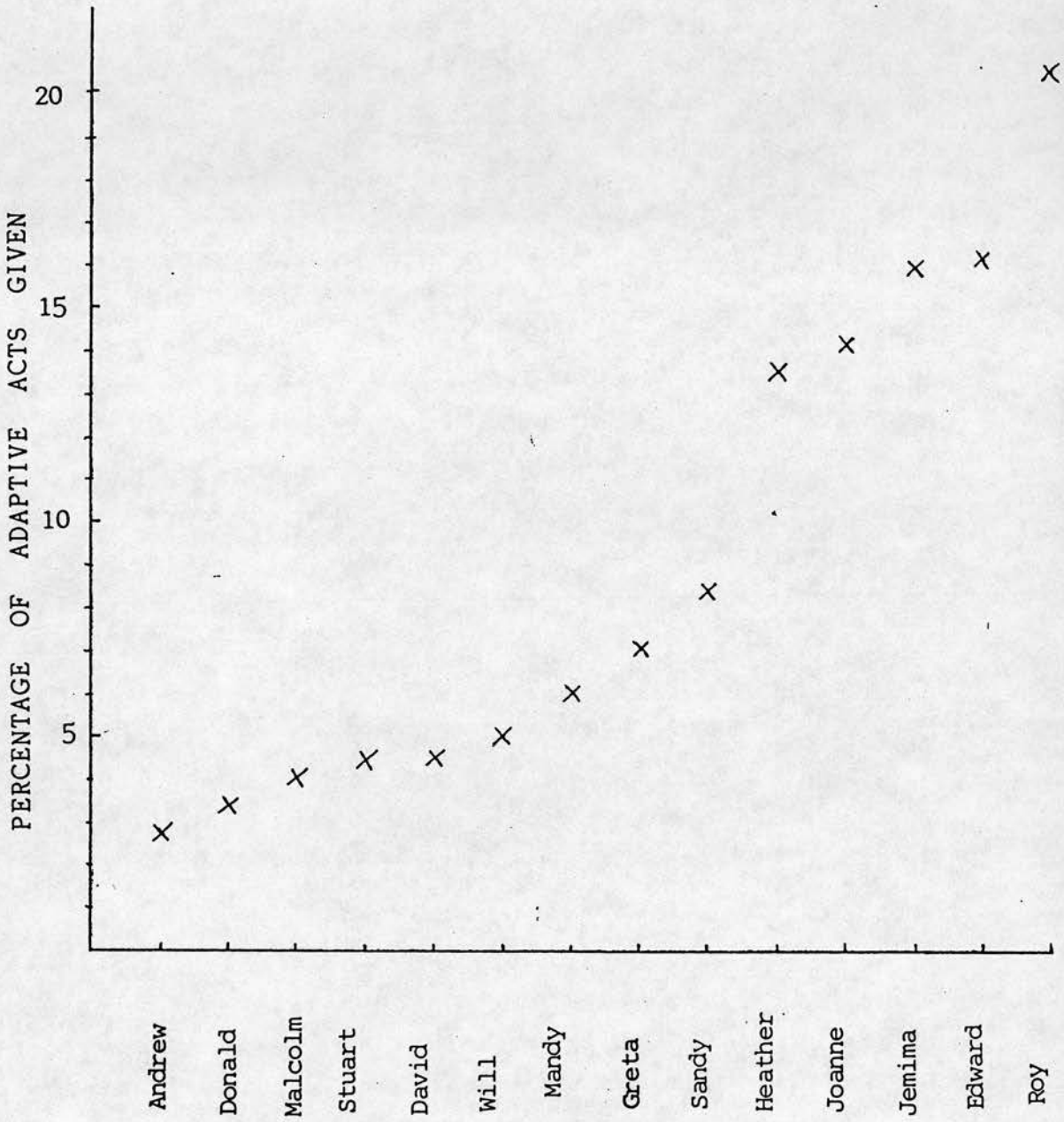


FIGURE 4: DISTRIBUTION OF SAMPLE MEMBERS' SCORES ON INTERACTION STYLE ADAPTIVE MEASURE

	Roy	Edward	Jemima	Joanne	Heather	Sandy	Greta	Mandy	Will	David	Stuart	Malcolm	Donald	Andrew
Score	20.5	16.2	16.0	14.1	13.5	8.4	7.1	6.1	5.0	4.6	4.5	4.0	3.4	2.8
Rank	1	2	3	4	5	6	7	8	9	10	11	12	13	14

TABLE 12: SAMPLE MEMBER'S SCORES AND RANK ORDER ON INTERACTION STYLE ADAPTIVE MEASURE

Figure 4 shows the distribution of the sample members graphically. A high scoring 'well-adjusted' extreme grouping of five individuals is clearly indicated, and there is a slight suggestion of discontinuity separating a low scoring 'difficult' group of six from the rest. Table 13 gives the membership of these extreme groups.

WELL-ADJUSTED	DIFFICULT
Roy	Will
Edward	David
Jemima	Stuart
Joanne	Malcolm
Heather	Donald
	Andrew

TABLE 13: MEMBERSHIP OF EXTREME GROUPS OF THE INTERACTION STYLE ADAPTIVE MEASURE

(ii) Plus acts:

A plus was awarded to each social act which seems designed to be of particular interest to others in the context given, and which is presented in an enthusiastic, although not necessarily adaptive, manner. Thus, in a fantasy game, a child excitedly saying "I've got a space-gun which can shoot green monsters", might receive the attribution friendly self +. A sample member's score on the plus measure represents the number of plus acts given by the subject as a percentage of the total number

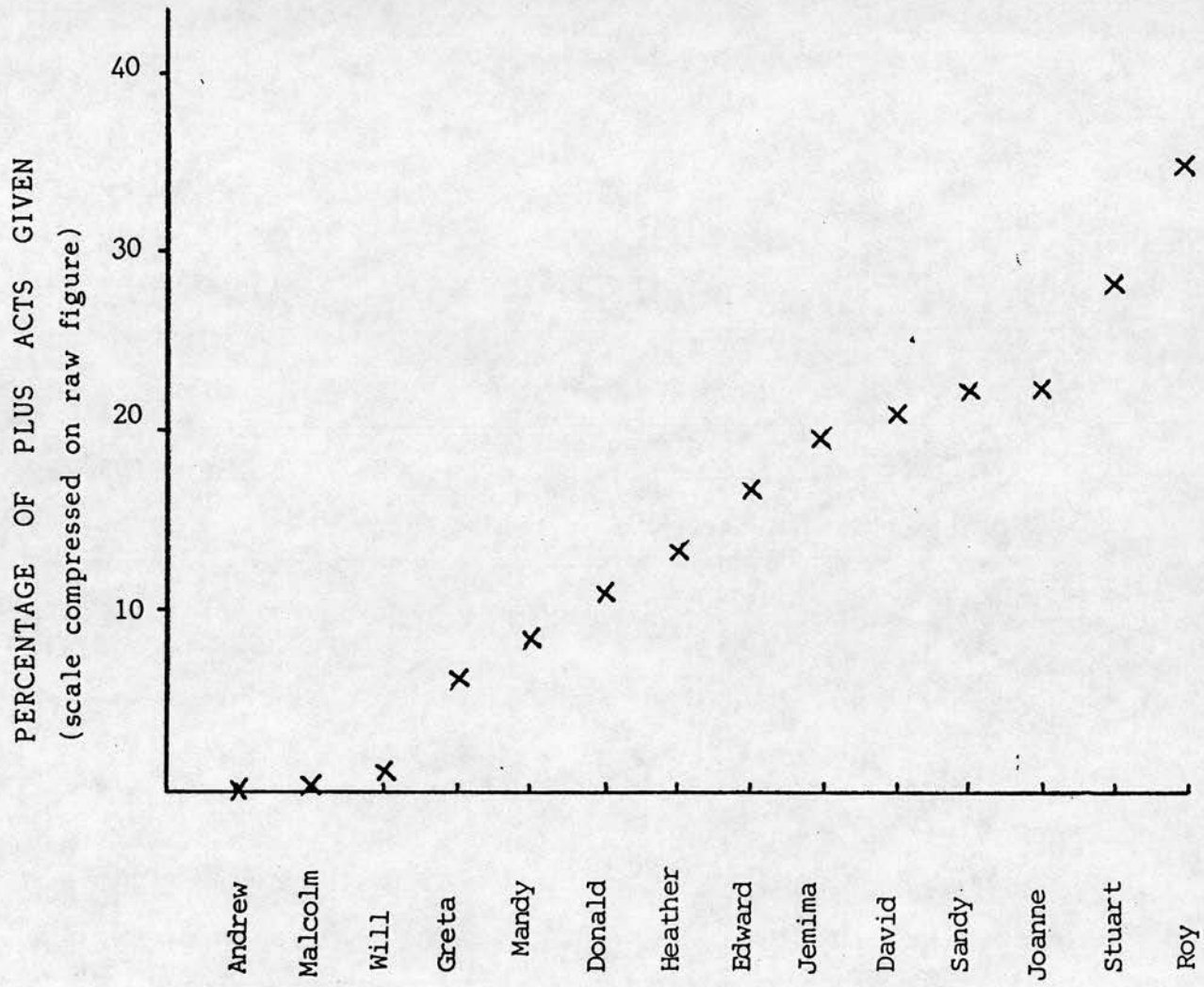


FIGURE 5: DISTRIBUTION OF SAMPLE MEMBER'S SCORES ON THE PLUS MEASURE

of category system one acts given by him/her. Sample members scores and rank order are given in Table 14.

	Roy	Stuart	Joanne	Sandy	David	Jemima	Edward	Heather	Donald	Mandy	Greta	Will	Malcolm	Andrew
Score	35.1	28.4	22.4	22.2	21.3	19.75	16.9	13.5	11.2	8.1	6.1	1.25	.5	0
Rank	1	2	3	4	5	6	7	8	9	10	11	12	13	14

TABLE 14: SAMPLE MEMBERS SCORES AND RANK ORDER ON PLUS MEASURE

Figure 5 shows the distribution of the sample members graphically. A group of three low scorers appear distinct from the rest and become the low scoring or 'difficult' extreme group. At the top of the graph there are two extremely high scorers (a pair of mutual best friends), but there is also a group of four below them, clustered quite closely together and still showing a high level of plus acts. They are all included in the high scoring or 'well-adjusted' group.

The membership of the extreme groups is given in Table 15.

WELL ADJUSTED	DIFFICULT
Roy	Andrew
Stuart	Malcolm
Joanne	Will
Sandy	
David	
Jemima	

TABLE 15: MEMBERSHIP OF EXTREME GROUPS OF THE PLUS MEASURE

(iii) Minus acts:

The 'minus' system is the negative equivalent of the 'plus' system just described. A minus is given to any social

act which is clearly against the recipient's interests and which is presented in a hostile manner. Minus acts are usually negative reactions to another's behaviour, e.g. "stop doing that" (organise -), or "no, no, give me the blue one" (contrary -). Any unprovoked acts presented in this manner would normally be found in the Annoying category.

A subject's minus score is the number of minus acts given expressed as a percentage of all category system one social acts given by him/her. The sample members scores and rank order are given in Table 16. (N.B. direction of rank ordering is now reversed for measures of negative behaviours.)

	Mandy	Greta	Donald	Andrew	Heather	Will	Roy	Stuart	David	Malcolm	Sandy	Joanne	Jemima	Edward
Score	22.2	8.2	6.9	6.9	6.3	5.0	3.8	3.4	2.9	2.0	1.8	1.3	1.2	0.7
Rank	14	13	11½	11½	10	9	8	7	6	5	4	3	2	1

TABLE 16: SAMPLE MEMBER'S SCORES AND RANK ORDER ON MINUS MEASURE

Figure 6 shows the distribution of the sample members graphically. There is clearly one exceptionally high scorer, but beneath her there is also a group of four individuals clustered together. These five makes up the high-scoring or 'difficult' group. The bottom end of the graph shows a very smooth ascent. A slight discontinuity between Malcolm and David is used to delimit the low scoring or 'well-adjusted' group which therefore consists of five members. Membership of the groups is given in Table 17.

WELL-ADJUSTED	DIFFICULT
Edward	Mandy
Jemima	Greta
Joanne	DOnald
Sandy	Andrew
Malcolm	Heather

TABLE 17: MEMBERSHIP OF EXTREME GROUPS OF THE MINUS MEASURE

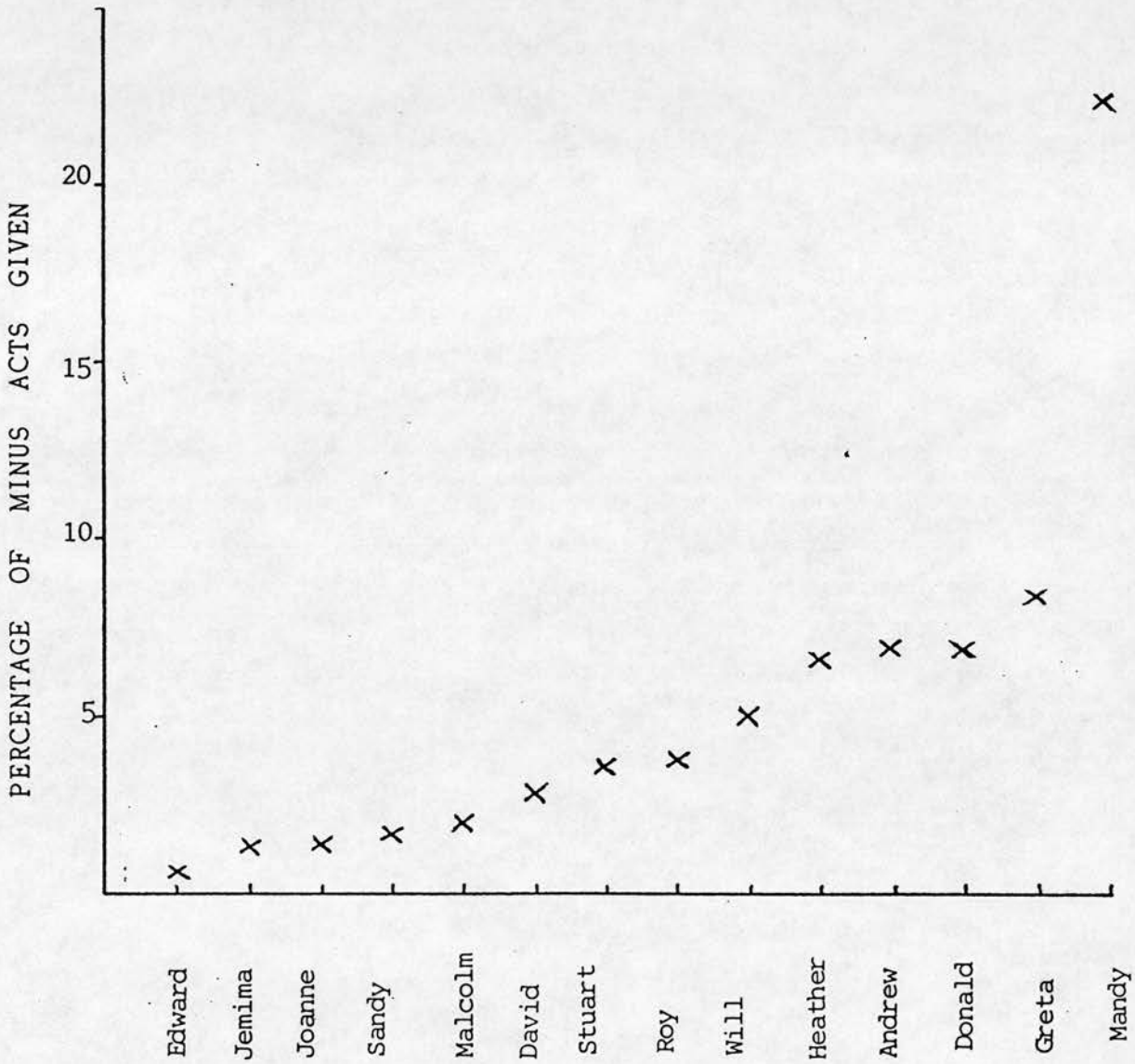


FIGURE 6: DISTRIBUTION OF SAMPLE MEMBER'S SCORES ON THE MINUS MEASURE

(iv) Annoying Acts:

An annoying act is defined as any act of which the main goal appears to be the hurting, provocation or annoyance of another. Such acts are usually unprovoked and could be described as instances of aggressive teasing. Acts of this sort are very rare amongst well-adjusted children and should only be found frequently in the behaviour of difficult individuals (Manning & Herrmann, 1981). Consequently it is reasonable to suppose that any child showing a significant proportion of 'annoying' behaviour is highly likely to be difficult rather than well-adjusted. In practice this measure does suffer from lack of range due to a pronounced floor-effect - half the sample showed no 'annoying' acts at all. Nonetheless some sample members did show significantly higher levels of provocative behaviour, marking them out as likely 'difficult' members of the sample.

A subject's score on this variable is the number of annoying acts observed amongst his/her social acts given expressed as a percentage of the total number of category system are acts given. The sample members scores and rank order are given in Table 18.

	Donald	Greta	Heather	Mandy	Sandy	Roy	David	Joanne	Jemima	Malcolm	Andrew	Will	Stuart	Edward
Score	5.2	4.1	4.0	2.0	0.6	.58	.57	0	0	0	0	0	0	0
Rank	14	13	12	11	10	9	8	4	4	4	4	4	4	4

TABLE 18: SAMPLE MEMBER'S SCORES AND RANK ORDER ON THE ANNOYING MEASURE

The sample members distribution on this variable is presented graphically in Figure 7. There are clearly only four members showing a significant amount of this type of behaviour - these four become the high-scoring or 'difficult' group. The low-scoring or 'well-adjusted' group is taken to be the seven sample members who show no annoying acts at all, although the three intermediate individuals show only a minimal amount. Membership of

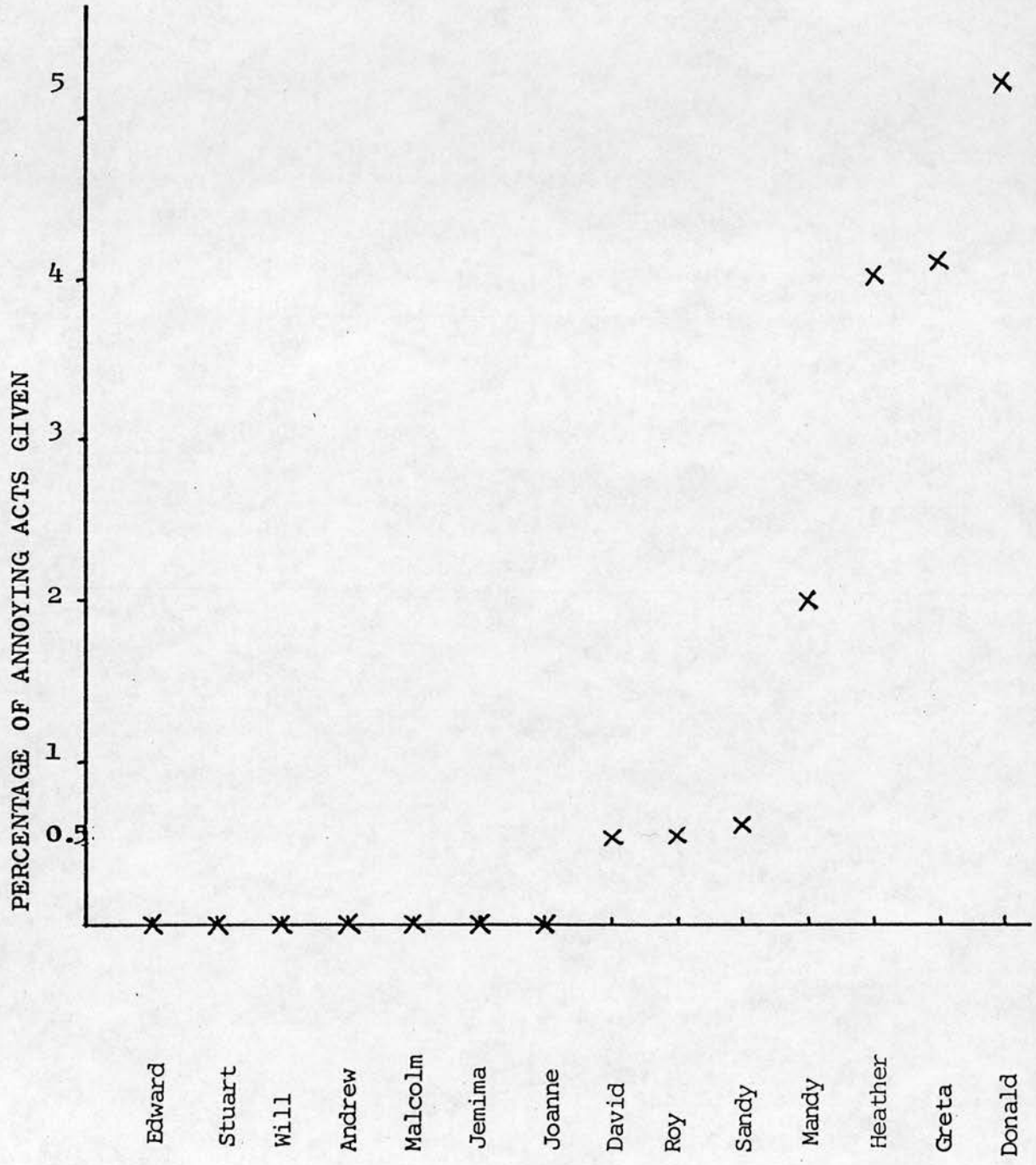


FIGURE 7: DISTRIBUTION OF SAMPLE MEMBERS SCORES ON THE ANNOYING MEASURE

the groups is given in Table 19.

WELL-ADJUSTED	DIFFICULT
Edward	Donald
Stuart	Mandy
Will	Greta
Andrew	Heather
Malcolm	
Jemima	
Joanne	

TABLE 19: MEMBERSHIP OF EXTREME GROUPS OF THE ANNOYING MEASURE

(v) Integration of the four variables:

Intercorrelations between the variables and the concordance of all four variables were calculated in order to test their predicted relationships to each other. Rank correlations were used, therefore the prediction was that all variables should positively intercorrelate, since high ranks had always been given to the well-adjusted end of the distribution.

The Kendall co-efficient of the concordance for all four variables is 0.487 (sig. at .05 level). Thus all four measures are found to be related in the predicted direction. Table 20 presents an intercorrelation matrix for the four measures separately.

	ADPV	PLUS	MINUS
PLUS	.56*		
MINUS	.46*	.47*	
ANNOY	.02	.02	.64*

*sig. at .05

TABLE 20: SPEARMAN RANK CORRELATION CO-EFFICIENTS FOR EACH POSSIBLE PAIR OF THE FOUR INTERACTION STYLE VARIABLES

Table 20 shows that three of the variables, adaptive, plus and minus, all inter-correlate significantly in the predicted direction. The fourth, annoying, correlates significantly with minus (the other 'negative' measure) but not with plus or adaptive. The erratic nature of the annoying variable's relationship with the others is

not surprising. On account of its pronounced floor effect, annoying fails to distinguish between seven of the sample members and another three show extremely minimal amounts of annoying behaviour - the ranking of subjects below the rank of 4 therefore provide no real basis on which to distinguish between these bottom ten individuals in terms of their well-adjustedness relative to each other. Nonetheless minus does correlate well with annoying as the four individuals who show significant amounts of annoying acts are all amongst the top five scorers on the minus measure. In general the members of the positive and the negative pairs of variables seem to correlate better between themselves than with members of the other set.

Given a group of individuals ranked on a number of related variables which are purported to be measures of the same underlying factor, Kendall (1948) suggests that the best estimate of the 'true' ranking of the subjects is provided by the order of their sums of ranks on all variables. Overall sum of ranks scores were therefore computed for the fourteen sample members by adding each individual's ranking scores on each of the four variables. The sample members scores on the sum of ranks measure and their rank order is given in Table 21.

Another rank ordering of the sample members could be made on the basis of their assignations to 'difficult' or 'well-adjusted' extreme groups. By subtracting the number of difficult assignations each individual received from his/her number of well-adjusted assignations, a balance of assignations measure is produced ranging, from a theoretical well-adjusted maximum score of+4 to a difficult maximum of -4. Within this range the subject's scores are rank ordered. These results are presented in Table 22, along with the appropriate totals of difficult and well-adjusted assignations each individual received.

The ordering of the sample members on the extreme groupings variable corresponds extremely closely with their ordering on the sum of ranks variable. The Spearman rank correlation between the two variables is

NAME		SUM OF RANKS	OVERALL RANK
JOANNE		14	$1\frac{1}{2}$
EDWARD		14	$1\frac{1}{2}$
JEMIMA		15	3
ROY		19	4
STUART		24	$5\frac{1}{2}$
SANDY		24	$5\frac{1}{2}$
DAVID		29	7
WILL		34	$8\frac{1}{2}$
MALCOLM		34	$8\frac{1}{2}$
HEATHER		35	10
ANDREW		43	$11\frac{1}{2}$
MANDY		43	$11\frac{1}{2}$
GRETA		44	13
DONALD		47	14

TABLE 21: SAMPLE MEMBERS SUM OF RANKS SCORES ON INTERACTION STYLE VARIABLES AND OVERALL RANK ORDER

NAME	WELL-ADJUSTED	DIFFICULT	BALANCE	RANK
JOANNE	4	0	+4	$1\frac{1}{2}$
JEMIMA	4	0	+4	$1\frac{1}{2}$
EDWARD	3	0	+3	3
ROY	2	0	+2	$4\frac{1}{2}$
SANDY	2	0	+2	$4\frac{1}{2}$
STUART	2	1	+1	6
DAVID	1	1	0	$7\frac{1}{2}$
MALCOLM	2	2	0	$7\frac{1}{2}$
WILL	1	2	-1	$9\frac{1}{2}$
HEATHER	1	2	-1	$9\frac{1}{2}$
ANDREW	1	3	-2	12
MANDY	0	2	-2	12
GRETA	0	2	-2	12
DONALD	0	3	-3	14

Balance score = well-adjusted - difficult

TABLE 22: EXTREME GROUPING ASSIGNATIONS FOR EACH INDIVIDUAL ALONG WITH OVERALL BALANCE SCORES AND RANK ORDER ON THIS VARIABLE

.98 (sig. at .001 level).

B: ASSIGNATION OF SAMPLE MEMBERS:

Sample members were assigned immediately to interaction style groups if they satisfied two criteria:- firstly they must show consistent patterns in their assignations to extreme groupings (i.e. all their assignations should be either difficult or well-adjusted), and secondly they must appear in the appropriate half of the overall 'sum of ranks' rank order (i.e. ranks 1 to 7 if well-adjusted by the first criterion or ranks 8 to 14 if difficult). In this way eight sample members were immediately assigned, five to the well-adjusted group and three to the difficult group - their 'extreme grouping' scores and 'sum of ranks' rank positions are given in Table 23.

NAME	INTERACTION STYLE	EXTREME GROUPS W/A	EXTREME GROUPS DIFF.	SUM-OF-RANKS RANK
JOANNE	WELL ADJUSTED	4	0	$1\frac{1}{2}$
JEMIMA	WELL ADJUSTED	4	0	3
EDWARD	WELL ADJUSTED	3	0	$1\frac{1}{2}$
ROY	WELL ADJUSTED	2	0	4
SANDY	WELL ADJUSTED	2	0	$5\frac{1}{2}$
MANDY	DIFFICULT	0	2	$11\frac{1}{2}$
GRETA	DIFFICULT	0	2	13
DONALD	DIFFICULT	0	3	14

TABLE 23: EXTREME GROUPINGS MEMBERSHIP AND SUM-OF-RANKS RANK POSITIONS OF SAMPLE MEMBERS IMMEDIATELY ASSIGNED TO INTERACTION STYLE GROUPS

Six sample members remain to be assigned - Malcolm, Andrew, Stuart, David, Will and Heather. Each will now be examined in detail before they are assigned to any category. In all cases consideration will be given to the individual's scores on all four variables in order that the apparent contradiction in their 'extreme grouping' assignations can be investigated. Particular attention will be paid to any evidence of a high level of negative behaviours. The difficult child is essentially

distinguished from the well-adjusted one by his tendency toward inappropriate aggression and hostility to others, so where such behaviour is present, even in addition to a certain amount of positive behaviour, the child would still be assigned to the 'difficult' category. Similarly some evidence of a high level of negative behaviour is usually required over and above a low level of positive behaviours before an assignation to the 'difficult' category is made.

It is important to note here that the accuracy of an individual's score on any of the four variables is related to the overall amount of social interaction in which he/she participates. In particular it becomes unrealistic to include in any overall comparison, individuals for whom very little data on peer interaction has been collected. In such cases an absolute variation of one observed act will result in a large variation in the percentage score, thus his/her position on any distribution is rendered much less reliable, especially where the relevant behaviours frequency of occurence is relatively low anyway.

(i) Malcolm and Andrew:

Malcolm and Andrew, a pair of monozygotic twin brothers, will be dealt together as they show closely similar patterns of behaviour. It will be argued that the evidence does not justify their assignation to either the difficult or well-adjusted groups but rather they should be set aside in a separate 'withdrawn' category such as that proposed by Montagner (1978) and acknowledged by Manning and Herrmann (1981).

A preliminary inspection of the amount of social acts which Andrew and Malcolm produce raises some immediate practical problem which also argues for their exclusion from the difficult vs well-adjusted analysis. Both produce very few social acts, and indeed it was very rare that either were observed to participate in maintained bout of social interaction. Consequently if either of them does display slight indications of a difficult or well-adjusted style of interaction, these

signs would be very difficult to assess accurately given such a small sample on which to base an assignation. That having been said it can further be argued that their extremely low level of social interaction is in itself evidence of a withdrawn interaction style. Both the difficult and well-adjusted styles involve considerable motivation to interact with others albeit with very different underlying aims. Andrew and Malcolm show very little interest in social interaction with any of their peers - the overwhelming impression they gave is one of extreme indifference. Overall Andrew gave a total of 72 category system one acts (rank 13 of the sample) and Malcolm gave 50 (rank 14), they were the lowest two sample members on that variable. Similarly they also show the lowest frequencies of social involvement above the parrallel level of all the sample members (Andrew 25, 30-second periods, rank 13, Malcolm 21, rank 14). Their lack of interest in others was particularly obvious in the context of their relationship together. It was shown in the case studies (Chapter 3) that whilst they do tend to associate with each other to some extent, they only exchange a very minimal amount of interaction and are usually found to playing in parallel. Their lack of sociability does not appear to be due to timidity in that neither showed any signs of fear in social situations, they simply seemed content not to concern themselves with others any more than necessary.

Andrew and Malcolm's unusually low sociability seems to be reflected in their pattern of scores on the four interaction style measures. Both show extremely low amounts of the positive behaviours (and thus appear to be difficult) but fail to show equivalently large amounnts of the negative behaviours, and thus they have ambivalent patterns overall. In this way Malcolm gained two difficult assignations for low levels of adaptive and plus acts, and two well adjusted assignations for low levels of minus and annoying acts. Thus he is clearly neither hostile nor very positive in his interaction - most of his social acts are indeed rather bland friendly or contrary acts delivered

outwith any maintained interaction.

Andrew similarly gains two difficult assignations for low levels of adaptive and plus acts, and a well adjusted assignation for a low score on the annoying variable, but he departs from the pattern on the minus variable, gaining a difficult assignation for a high score. This score does not however reveal large amounts of unprovoked or unreasonable aggression on closer analysis:- firstly it should be noted that his percentage score of 6.9% is based on only 5 minus acts (on account of the very small total amount of acts he gives). These five acts all occurred in isolated incidents where some dispute has arisen over territory or objects, or where Andrew has received provocation, i.e. all are 'specific' hostility (Manning et al, 1978) and are not strong evidence of difficult behaviour. Indeed in the example below Andrew shows skill in defusing aggression rather than causing it:

Andrew: "Anyone want some castle".
Sandy knocks his castle with spade deliberately.
Andrew hits Sandy (not too hard).
Sandy glares at Andrew threateningly.
Andrew starts to gaily break up his castle and laughs, turning it into a game.
Sandy goes off.

Thus analysis of Andrew's and Malcolm's scoring on the interaction style variables produces no strong for their assignation to either the difficult or well-adjusted interaction styles. These findings therefore support their exclusion from both groups.

Lastly it should be noted that Andrew and Malcolm's friendship patterns also seem to reflect very low sociability. Both were assigned to the pluralistic group, having no close relationship with any other, and both also have small ranges of companions (Andrew 5, Malcolm 3). Thus their relationships with others are few and weak.

Both Andrew and Malcolm will not therefore be included in the comparison of the friendship patterns of difficult

and well-adjusted children. They are tentatively assigned to a 'withdrawn' group on account of their lack of sociability, although they differ from Montagner's (1978) descriptions of 'withdrawn' children in that they don't display fear in social situations. The reasons for their unusual lack of interest in social interaction are quite unclear, but it is clear that they could not reasonably be assigned to the difficult or well-adjusted groups. It was not possible in this study, to take the analysis of their enigmatic pattern of behaviour any further.

(ii) Stuart:

Stuart gains a relatively well-adjusted overall ranking (rank $5\frac{1}{2}$) tying with Sandy, a clearly well-adjusted child, and he features in the well-adjusted extreme grouping of the plus and the annoying measures. The only score in his overall pattern which is inconsistent with the well-adjusted pattern is a low frequency of adaptive acts, a score which put him in a difficult extreme grouping.

Consideration of Stuart's low level of adaptiveness in the context of his strong best friendship suggests that it may be associated with Stuart's tendency to follow whilst Roy leads in their joint activities, (see case studies (1) and (2), Chapter 3). Stuart rarely needs to organise or initiate co-operative or co-ordinated action - Roy does this enthusiastically and with great 'adaptive' consideration for Stuart. Stuart is nonetheless an enthusiastic playmate as his very high level of plus acts indicates (rank 2 after Roy on the plus variable) - his low adaptiveness does not therefore indicate an inability to be positive in social play. The evidence of this high level of plus acts taken together with Stuart's low level of annoying behaviour provide strong evidence of a well-adjusted style and clearly outweigh the relatively weak evidence of the adaptive variable discussed above. He was therefore assigned to the well-adjusted group.

(iii) Heather:

Heather is a borderline case of the opposite type. Her 'sum-of-ranks' rank position put her towards the 'difficult' end of the scale (rank 10) and whilst she appears once in a 'well-adjusted' extreme grouping (adaptive acts) she appears twice in 'difficult' ones (minus and annoying). Indeed in this case, the evidence for a difficult style of interaction seems very strong. Heather shows a high frequency of minus or hostile acts, and most importantly, she also shows a significant level of annoying acts. This tendency toward unprovoked aggression is in itself very strong evidence of a 'difficult' behavioural style. Thus Heather's two assignations to 'difficult' groups are telling ones. Whey then is she high on adaptiveness, the one score which results in her inclusion in a 'well-adjusted' extreme grouping? It may be that Heather shows much of the manipulative type of adaptive act described in section A (i) of this chapter. It was explained there that the definition of adaptive acts used in this study can include certain types of act which are essentially intended to elicit the recipient's acquiescence to a course of action desired by the actor. When given by someone leading a game these acts almost always amount to orders but they are phrased considerately - often the actor sweeps on without allowing any room for negotiation, assuming the other will acquiesce. Heather is almost always the leader in any organised play she is involved in, and in controlling the others she does indeed often produce this manipulative type of adaptive act. For example in a game of doctors and nurses (Heather leading).

"You be nurse too o.k." (to newcomer)
"Your nurse too and hold on to teddy has got a bad cold".
"Just a minute, I'll do it in a minute O.K.?"

Heather also tends to show another sort of 'adaptive' behaviour which might be considered to be more selfish than truly considerate for the other - when she is at a loose end, she will often approach someone playing quietly

on their own and start 'helping' them, joining in without invitation. This usually starts off well enough but sometimes it becomes apparent that the other resents the interference, especially since Heather tends to take over. This can be seen as another sort of manipulative adaptiveness - Heather wants company and access to group play and she has learnt to use 'adaptive' behaviour to this end.

So whilst Heather may be more socially skilful than most 'difficult' preschoolers (she is the oldest member of the sample at 4:7), clear signs of difficult behaviour are present and her social skills are often exercised in the pursuit of a 'difficult' aim, namely the rather dominating and bossy control of others (i.e. the aims of Manning's agressives (Manning & Herrmann, 1981) or Montagner's dominant-agressives (Montagner, 1978). She was therefore assigned to the difficult group.

(iv) David:

David gains rank 7 on the overall sum-of-ranks measure and has one difficult and one well-adjusted assignation to extreme groupings. He thus seems to represent a very borderline case - on closer analysis his behaviour typical of a well-adjusted child rather than a difficult one.

Firstly he shows no evidence of high levels of aggressive behaviour he is moderate on both the minus and annoying variables. Both his assignations to extreme groups are on positive variables. Like Stuart he shows a high level of 'plus' acts (well-adjusted), but a low level of adaptiveness (difficult).

Examination of the nature of play David tends to be involved in and his role in it, suggests that he, like Stuart, has little cause to exercise consideration to others because he rarely takes it upon himself to organise or co-ordinate others. He is very rarely alone (solitary 9.6%, rank 11) but he tends only to be socially involved at the parallel level (50.85% rank 2). When he is involved

in more sophisticated play he usually takes a fairly unobtrusive role in it. David seemed particularly keen on verbal nonsense play, play which simply requires co-ordination rather than any co-operative negotiation.

e.g. Donald: 'Coo'
David: 'Coo'
Donald: 'poofin'
David: 'coofin'
Donald: 'stoofin'
David: 'roogle'
Donald: 'woggle'

This type of play does not require much adaptive behaviour but the participants can often provide 'interest' which serves to develop and maintain it.

So, whilst David may not be one of the most skilled interactants in the nursery, analysis of his behaviour clearly indicates that he is well-adjusted rather than difficult - he is not unduly aggressive and he does participate keenly in joint activities providing interest for others in his actions. He was therefore assigned to the well-adjusted group.

(v) Will:

Will is perhaps the most truly borderline member of the sample. On the sum-of-ranks measure he is ranked $8\frac{1}{2}$ whilst he twice appeared in difficult extreme groupings and once in a well-adjusted one. All of these extreme group assignations are, however, the result of low frequencies of observed behaviours - thus the two difficult assignations come from low level of plus and adaptive acts and the well-adjusted assignation comes from a low score on the annoying measure.

The two positive measures, plus and adaptive, are therefore in agreement - they both indicate a difficult style of interaction. Both cannot be seen as equally strong evidence however. A low adaptive score is a weak source of evidence, as has already been argued in the cases of Stuart and David, furthermore Will, like David, spends a great deal of time in parallel play (62.1%, rank 1). Thus he has less need to be adaptive than someone who is

trying to organise and get co-operation from others.

However unlike David, Will also shows an extremely low placing on the 'plus' measure - he is very rarely trying to add interest to his play. On this measure he is far below all other sample members except the two 'withdrawn' twins, Andrew and Malcolm. So this is indeed quite an extreme score (see Figure 5). The plus variable therefore provides rather stronger evidence of Will's difficult behaviour.

Will only fell into one extreme grouping on the negative variables, the well-adjusted grouping on the annoying variable. This can be discounted as very weak evidence of well-adjustedness, and is clearly outweighed by Will's lack of positive behaviour. Nonetheless Will shows no strong evidence of difficult behaviour in that he fails to score highly on the minus or annoying variables. Will's score on the counteradaptive variable used in the case study analysis was therefore examined as a source of further evidence. Counteradaptive acts are acts which clearly go against another's interests, but which are not necessarily hostile or even deliberate. (fuller definition in chapter 2.) Will showed a very high proportion of these (21.25%), second only to the 'difficult' Mandy, and far above the first 'well-adjusted' sample member (Jemima 9.9%). So Will seems to habitually disregard others interests and desires, although he does not appear to overtly annoy or provoke them.

WIll's overall pattern of behaviour does therefore seem to indicate a difficult style of interaction although he is less outwardly hostile than the other members of the difficult group. To an extent Will may be showing an extremely dependent style - he doesn't show the need to be 'boss' typical of aggressive children but rather seems primarily interested in simply being included in play groups. Once in play Will disregards others needs and desires and shows extremely little inclination to develop interesting themes with his playmates - yet he is extremely rarely alone (3.75%, rank 13).

This behaviour seems perfectly congruent with Manning's assertion that 'dependent' children primarily need to show that they are 'accepted' and liked by their peers (Manning and Herrmann, 1981). Will was therefore assigned to the difficult group.

(vi) Conclusions:

Of the total sample of fourteen individuals, seven were assigned to the well-adjusted group, five were assigned to the difficult group and two were considered withdrawn. The membership of the well-adjusted and difficult groups given in Table 24. Comparison of the groups in Table 24 and the overall rank order on the sum-of-ranks measure.

WELL-ADJUSTED	DIFFICULT
Joanne	Mandy
Jemima	Greta
Edward	Donald
Roy	Heather
Sandy	Will
Stuart	
David	

TABLE 24: MEMBERSHIP OF INTERACTION STYLE GROUPS

(Table 21) reveals that the two final groups could be completely distinguished from each other by drawing a line between ranks 7 and 8, assigning all those above the line to the well-adjusted group and all those below it to the difficult group. Thus the final groupings are consistent with the sum of ranks order, although the crude grouping procedure just described would have put Andrew and Malcolm in the difficult group rather than separating them out.

The final groupings are similiarly consistent with the rank order of the 'balance of extreme group assignations' measure (Table 22), if all individuals with a positive balance were assigned to the well-adjusted group and all those with a negative balance were assigned to the difficult group. Andrew would again become difficult, but in this case there would be two individuals who could not be directly assigned as they have balance scores of

zero (Malcolm and David).

Thus it can be seen that close examination of the borderline cases essentially achieved two things. It helped identify unusual cases suitable to neither the difficult or well-adjusted groups and it helped determine the point at which the line might be drawn between difficult and well-adjusted cases. The proportions of difficult and well-adjusted children finally arrived correspond well with those of Manning and Vowles (1977) who found 57.1% well-adjusted, 42.9% difficult. In this study, of the twelve sample members assigned to either group, 58.3% are in the well-adjusted group and 41.7% are in the difficult group. The final groupings are therefore put forward with confidence.

CHAPTER SEVEN

COMPARATIVE ANALYSIS OF THE FRIENDSHIP PATTERNS OF DIFFICULT AND WELL-ADJUSTED SAMPLE MEMBERS

The analysis of possible associations between patterns of friendship and styles of interaction went through three stages. In the first stage significant differences in the scoring of difficult and well-adjusted children on some separate variables measuring the child's range of companions and the strength of his bestfriendship were sought across the whole sample. The second stage compared the types of friendship pattern shown by difficult and well-adjusted children in terms of the friendship pattern typology developed earlier in this thesis. Differences were sought within friendship pattern types as well as across them. In the third stage a further multivariate analysis was carried out, on the basis of a model incorporating interactions between friendship patterns and interaction styles, as identified in the previous section. The results of these three phases of analysis are reported in this chapter.

A: COMPARISON OF DIFFICULT AND WELL-ADJUSTED SAMPLE MEMBERS ON SOME SIMPLE FRIENDSHIP PATTERN VARIABLES

This first analysis was carried out in order to identify, at an early stage, any gross differences which may exist between the two groups. It involved comparing the groups' scores on four variables.

These particular four variables were chosen because each represents an easily obtainable (i.e. no content analysis of social interaction) but gross variable of apparent relevance to the way children pattern their relationships with peers. They thus represent measures of friendship pattern which might be used to provide a superficial description of individuals if it was felt that the typology proposed in the first part of this thesis was not warranted.

The particular four variables used are of a different nature from those used in assigning the individuals to the difficult and well-adjusted interaction style groups. Two of them are measures of the amount of sample time the child spent with one particular individual (the best friend), one is a measure of the number of social acts exchanged between the child and the same particular individual, and the fourth is a measure of the number of different individuals with whom the child associated during the sample period. All four of the 'interaction style' measures, on the other hand, were measures of the proportions of certain types of social acts which had appeared within the total amount of all social acts produced by the child in the sample time, irrespective of whom they may have been directed at. These two different sets of four variables are statistically independent of each other.

To an extent this analysis helped test the usefulness of the friendship pattern typology developed earlier - if the two interaction style groups showed clear differences in their friendship patterns on these gross variables but could not be distinguished in terms of friendship typology, then the typology's usefulness might be seriously questioned. If on the other hand, the friendship pattern typology was found to make clearer and more subtle distinctions between the interaction style groups then its value as a model of an important aspect of peer interaction would be enhanced, and the usefulness of 'crude' measures would be shown to be relatively limited.

Four variables were used - each had previously been featured in the multivariate analysis of friendship patterns (Chapter 4), and in the case study analysis (Chapter 3). The first of these, 'range of companions' is a measure of the number of regular companions (present for at least 10% of the sample) for each child. The second variable, 'association with best friend', is a measure of the number of 30-second periods for which the child was observed to be with his best friend (as selected by the best friend selection procedure). The third variable, 'social association with best friend' is a measure of the number of 30-second periods for which the child was observed to be with his best friend and participating in group activity at a social level of involvement (i.e. levels social 1, social 2, or social 3). The fourth variable 'social acts exchanged with best friend' simply measures the number of social acts exchanged between the subject and his best friend (acts given plus acts received) within the subject's sample. Means and standard deviations for the difficult and well-adjusted groups are given for each variable in Table 25, together with the results of t-tests of the differences between means. The results of equivalent Mann-Whitney 'u' tests are also given because in two cases the standard deviations of the two groups vary extremely widely, thus undermining the robustness of the t-test.

	WELL-ADJ.		DIFFICULT		t-test		Mann-Whitney	
	MEAN	SD	MEAN	SD	t-value	sig.	'u'	sig.
RANGE COMP.	6.43	3.26	7.2	3.03	.41	ns	21	ns
ASSOC.BF	77.43	37.96	53.6	21.55	1.26	ns	10	ns
SOC.ASSOC.BF	48.86	45.22	18.0	9.46	1.48	(.10)	6	.05
SOC.ACTS EXCH.BF	103.57	103.14	36.2	27.11	1.41	(.10)	8	(.10)

RANGE COMP. = RANGE OF COMPANIONS

ASSOC.BF = ASSOCIATION WITH BEST FRIEND

SOC.ASSOC.BF = SOCIAL ASSOCIATION WTIH BEST FRIEND

SOC.ACTS EXCH.BF = SOCIAL ACTS EXCHANGED WITH BEST FRIEND

TABLE 25: MEANS AND STANDARD DEVIATIONS OF DIFFICULT AND WELL-ADJUSTED GROUPS ON FOUR FRIENDSHIP PATTERN VARIABLES WITH RESULTS OF STATISTICAL TESTS OF DIFFERENCES BETWEEN MEANS.

Table 25 shows clearly that the difficult and well-adjusted groups cannot be distinguished in terms of the number of regular companions which they have. In spite of their rather inconsiderate and aggressive behaviour to others, it appears that difficult children were, on the whole, finding companions as successfully as well adjusted children - they were not being consistently shunned or avoided by their peers. If anything, the difficult children seem to have had more rather than fewer companions.

On the three best friend variables a weak trend emerges suggesting that the well-adjusted group tend to show closer or more intense friendships than the difficult group. There is a nonsignificant tendency for the well-adjusted children to associate more frequently with their best friends and they were significantly more often socially involved in the company of their best friends (sig. at .05, Mann-Whitney). There is also a weak tendency for the well-adjusteds to exchange more social acts with their best friends but this only reaches significance at the .10 level. On all three best friend variables the well-adjusted group show particularly large standard deviations indicating that there is a wide range of individual variation within the group. So whilst these data might suggest that well-adjusted children do on average tend to show closer best friendships, nevertheless there appear to be some well-adjusted children with rather weak best friendships whilst others have very strong ones. There is a large range of individual differences within each group which should be looked at more closely.

Overall this analysis has shown that well-adjusted children do not tend to have larger ranges of regular companions but they do, on average show a slight tendency to have closer or stronger best friendships.

B: ANALYSIS ACCORDING TO FRIENDSHIP PATTERN TYPOLOGY

Each member of the sample has been classified according to his style of interaction (Chapter 6), and according to the type of friendship pattern he shows (Chapters 3 and 4). Table

26 shows both assignations for each individual with the sample members grouped according to friendship pattern.

NAME	FR.PATTERN	INT.STYLE
ROY	RECIP BF	WELL-ADJ
STUART	RECIP BF	WELL-ADJ
JEMIMA	RECIP BF	WELL-ADJ
WILL	UNRECIP BF	DIFFICULT
JOANNE	UNRECIP BF	WELL-ADJ
DONALD	UNRECIP BF	DIFFICULT
MANDY	UNRECIP BF	DIFFICULT
EDWARD	UNRECIP BF	WELL-ADJ
HEATHER	PLURAL	DIFFICULT
SANDY	PLURAL	WELL-ADJ
DAVID	PLURAL	WELL-ADJ
GRETA	PLURAL	DIFFICULT

TABLE 26: FRIENDSHIP PATTERNS AND INTERACTION STYLES OF SAMPLE MEMBERS

The pattern of assignations shown in Table 26 shows that, in this sample, all children with reciprocated best friend friendship patterns are well-adjusted. Amongst the other two friendship pattern groups however, difficult and well-adjusted children are fairly evenly mixed. This pattern of association accords well with the findings of the previous section which suggested that well-adjusted children tend to have closer friendships on average, but nonetheless show a very wide range of individual variation. It can be seen here that well-adjusted children show all types of friendship pattern whereas the difficult children tend to have friendship patterns which do not involve established close friendships.

Detailed comparisons will now be made within the membership of the unreciprocated best friend and pluralistic groups in an effort to show more subtle differences in the way that the difficult and the well-adjusted children in each group behave towards their friends. In the course of these analyses reference will be made to data produced for the case study and multivariate analyses of friendship patterns and results reported in their respective chapters. The tables of results on which the case studies were based are given in Appendix D and a matrix

of the results of statistical tests comparing each individual's behaviour towards the best friend and others is given in Appendix E.

(i) The Unreciprocated Best Friend Group

There are two well-adjusted children in the UNRECIP BF group, Joanne and Edward, and three difficult children, Will, Donald and Mandy. A comparison of the reports of each of their case studies (Chapter 3) does suggest a consistent difference within this group between the difficult and well-adjusted members.

The well-adjusted children, Joanne and Edward, both seemed to be trying to encourage and promote a greater level of sophisticated play and mutual interaction with their best friends, but they appeared to be frustrated by a lack of reciprocation on the others' part. Thus in Edward's case it was seen that he tended to be more socially involved with his best friend and within his joint activities with the best friend, he tended to lead and the other follow (Appendix D, table 11). It seemed to be Edward who was making the pace in their social play and in doing so he was significantly more adaptive to his best friend. Joanne also became significantly more socially involved with her best friend although in her case there was no need for Joanne to make the pace - her best friend Heather is a very bossy and insistent leader. When playing with Heather, Joanne adopted an unusually unassertive role, instead of leading she followed and from Heather she received large numbers of controlling acts. In her interview Joanne made it particularly clear that she attached great importance to her relationship with Heather. Thus both Joanne and Edward seemed to be showing a desire to develop a closer or more intense friendship with their best friend - both appeared to be aiming to develop a reciprocated best friendship pattern although frustrated in this aim.

The three difficult members of the UNRECIP BF group showed less evidence of the desire for a closer relationship with their best friend. They certainly all showed a significantly more friendly pattern of social acts towards the best friend,

but they did not appear to be trying to develop a more intense or sophisticated interaction with him/her. Thus, although Will's best friend (Roy) was the most highly active member of the sample at the higher levels of social involvement, Will surprisingly failed to show greater social involvement with his best friend. It seemed that Will had little interest in playing in a co-ordinated or co-operative fashion with anyone. Although he seemed attracted to join Roy in play activities, once in the group he would play with minimal reference to what the others were doing, often playing in parallel whilst Roy and others were socially involved. Mandy also seemed attracted to her best friend at a relatively shallow level. When in her best friend's company (in this case her unreciprocated best friend was Will) there was again no enhanced level of social involvement and few social acts were directly exchanged between them. Donald also exchanged few social acts with his best friend Sandy. Donald did become a little more involved in co-ordinating activity with others at the social 1 level, but some increase in Donald's social one (from a normally low level) was almost inevitable, as Sandy was one of the leading exponents of co-ordinated fantasy play in the whole sample (i.e. physical noisy fantasy games such as 'cowboys and indians', 'monsters' etc.). There was no increase in co-operative social 2 involvement when Donald was with his best friend. So Donald participated in some social play in Sandy's company, but not particularly with Sandy himself, nor did he show any desire to do so. All three of the difficult children in the UNRECIP BF group were thus found to be attracted to another whose company or group they wanted to be in, but once in the company of their best friends, they did not appear to be seeking to develop particularly close relationship of the RECIP BF type with them.

The ways in which the difficult members of the UNRECIP BF group shifted their patterns of social acts when interacting with the best friend were also consistent and distinctive. The cluster analysis of friendship patterns (procedure HIERARCHY) formed Will, Donald and Mandy into a relatively distinct

cluster (see Chapter 4). This cluster was distinctive in consistently showing large BESTFRIEND/OTHERS swings of three types. They showed large reductions in the amounts of contrary and counteradaptive acts they gave and large swings towards producing following rather than leading acts. They did not show increased adaptiveness to their best friends but they did appear to suppress the negative aspects of their difficult behavioural style when interacting with the best friend.

Table 27 groups together the scores of the difficult and well-adjusted members of the UNRECIP BF group on three variables which determine the extent to which the subject is directly involved with the best friend in social activities; (i) The number of social acts (category system one) exchanged with the best friend; (ii) the number of social acts (category system two) exchanged with the best friend (these were social acts occurring within the context of an ongoing or potential play bout); and (iii) the proportion of the BESTFRIEND sample for which the subject was seen to be socially involved above the level of parallel (i.e. at levels social 1, 2 or 3).

	WELL-ADJ		DIFFICULT			t-value
	EDWARD	JOANNE	WILL	DONALD	MANDY	WA v DIFF
SAXBF	68	54	36	26	26	4.69***
SYS2XBF	68	47	34	23	19	3.31**
%SOCBF	48.3	43.2	30.3	33.3	16.7	2.77*

* sig at .05 level ** sig at .025 level *** sig at .01 level

SAXBF: Social acts (cat. sys. one) exchanged with best friend
SYS2XBF: social acts (cat. sys. two) exchanged with best friend
%SOCBF: percentage of BESTFRIEND sample for which subject was socially involved at social 1, 2 or 3 levels.

TABLE 27: SCORES OF DIFFICULT AND WELL-ADJUSTED MEMBERS OF UNRECIP BF GROUP ON VARIABLES MEASURING EXTENT OF SOCIAL INTERACTION AND INVOLVEMENT WITH BEST FRIEND AND RESULTS OF t-TESTS OF COMPARISONS OF MEANS

Inspection of Table 27 confirms that the well-adjusted members of the group were consistently involved in a greater

amount of direct interaction with their best friends and were more often socially involved with them. These figures would again seem to reflect a greater interest amongst the well-adjusted sample members in developing closer friendships.

(ii) Pluralistic Group:

There are two well-adjusted children in the PLURAL group, Sandy and David, and two difficult children, Heather and Greta. Since pluralistic children did not have a special best friend, there is a much smaller basis of relevant friendship pattern variables on which these two sub-groups can be compared - all interaction with best friend and best friend/others variables are irrelevant. Comparison is also somewhat clouded by the fact that both the well-adjusted PLURALS are boys and both the difficult PLURALS are girls - thus any differences observed could be attributed to sex. However, there does appear to be evidence that the well-adjusted pair are more socially active at the more socially sophisticated levels than are the difficult pair, a difference which seems better explained by interaction style than sex.

Table 28 gives the scores of the difficult and well-adjusted members of the PLURAL group on four variables. The first three are relevant to the extent of the child's participation in social interaction and activities - they are (i) number of social acts (category system one) given overall, (ii) number of social acts (category system two) given overall and (iii) number of 30-second periods scored at a social level of involvement (social 1, 2 or 3). The fourth variable is the range of regular companions.

	WELL-ADJ		DIFFICULT		t-value
	SANDY	DAVID	HEATHER	GRETA	WA v DIFF
SOC.ACTS GIVEN	167	174	126	98	4.05*
SYS2 ACTS GIVEN	115	138	80	54	3.43*
No.PERIODS SOC. INV.	94	75	64	30	1.93
RANGE COMP.	11	9	6	7	6.30**

* sig. at .05 level ** sig. at 0.25 level

TABLE 28: SCORES OF DIFFICULT AND WELL-ADJUSTED MEMBERS OF THE PLURAL GROUP ON VARIABLES OF SOCIABILITY, SOCIAL INVOLVEMENT AND RANGE OF COMPANIONS WITH RESULTS OF t-TESTS OF COMPARISONS OF MEANS.

On all four variables in Table 28 the two well-adjusted children score more highly than the difficult ones. The well-adjusted PLURALS give significantly more social acts of both types (by a considerable margin), and also tend (non-significantly) to be more often socially involved at co-ordinated or co-operative levels. They furthermore show significantly larger ranges of companions than the difficult children. Between the two difficult children Heather appears to be rather more socially active than Greta - this is probably partly due to her age. At 4:7 Heather is the oldest member of the whole sample whereas Greta's age is in the mid-range of the sample at 3:11. Given the general increase in social participation with age (Parten, 1932), Heather could be expected to be more advanced in this respect. Across the interaction style groups, however, age clearly has little effect as Sandy (3:8) and David (3:11) are, on average, younger.

The difference in range of companions might be partly associated with sex as the boys in the overall sample tend (non-significantly) to show larger ranges (average boys 7; average girls 5.2). These sex differences in the range of companions were not however found by Clark et al. (1969) who used a closely equivalent measure of range of companions in their study of two nurseries. Overall it seems very unlikely that sex bias could account for the greater sociability of the well-adjusted groups. Large sex differences in sociability or social participation favouring boys have not been reported in previous studies.

It does seem likely, therefore, that interaction style is an important factor in determining the attitude of the pluralistic child towards his friends and companions. The well-adjusted child is keen to interact and get socially involved with a wide range of his peers. The difficult pluralistic child is considerably less socially active in all or most of these respects.

(iii) Discussion:

Analysis of the UNRECIP BF and PLURAL groups in terms of the interaction styles of their members has suggested that difficult and well-adjusted sub groups can be identified in both,

distinguished by their attitude towards their friends. Thus, in the UNRECIP BF group the well-adjusted children appeared to be keen to develop best friendships like those seen in the RECIP BF group, whereas the difficult members seemed only to want to get into the best friend's company rather than develop personal interaction with him. In the PLURAL group the well-adjusted children appeared to be more generally sociable than the difficult children. A further typology of five 'types' is suggested by the interaction between friendship patterns and interaction styles. These five types are:- (1) The RECIP BF/ WELL-ADJUSTED group, (2) the UNRECIP BF/DIFFICULT group, (3) the UNRECIP BF/WELL-ADJUSTED group, (4) the PLURAL/ DIFFICULT group and (5) the PLURAL/WELL-ADJUSTED group.

In both the UNRECIP BF and PLURAL groups, the difficult children are being less sociable in the sense that they seem less involved in social interaction, especially at more sophisticated levels. It can be shown that interaction style is significantly associated with general measures of sociability across the whole group in this sample. Table 29 shows the results of t-tests of the differences between means of the difficult and well-adjusted groups on three variables relevant to general sociability: (i) SOCIAL ACTS GV, the number of category system one social acts given overall, (ii) SYST.2 ACTS GV, the number of social acts designed to promote or maintain a bout of positive interaction given overall and (iii) SOCACTIV, the number of 30-second periods spent at a social level of involvement (i.e. social 1, 2 or 3 levels) overall. Rank correlation co-efficients are also reported between the groups' ranking on each of these measures and their ranking on the 'sum of ranks' rank order compiled in Chapter 6, a measure of the interaction style of the sample members.

	rs	t-value diff w-adj
SOCIAL ACTS GV	.40	1.99*
SYST.2 ACTS GV	.53 *	2.35**
SOC ACTIV	.58 *	2.19**

rs: rank order correlation with sum-of-ranks interaction style variable

* sig. at .05 ** sig. at .025

TABLE 29: t-TEST COMPARISON OF MEANS OF INTERACTION STYLE GROUPS ON SOCIABILITY VARIABLES AND CORRELATIONS OF SOCIABILITY VARIABLES WITH SUM-OF-RANKS INTERACTION STYLE VARIABLE.

Table 29 shows that well-adjustedness is significantly associated with sociability, particularly in terms of those sociability variables which measure participation in positive bouts of interaction or the amount of social involvement. These findings are thus in agreement with Manning and Herrman (1981) who write "difficult children come, in general, rather lower on the social participation scale". The correlations between rank order on the overall interaction style variable and the sociability variables are only of moderate strength however, factors other than sociability also play an important role in interaction style.

The five friendship pattern/interaction style groupings will now be tested for validity using multivariate analysis.

C: MULTIVARIATE ANALYSIS

Chapter 4 reported the results of a discriminant analysis which was carried out to test the validity of the friendship pattern typology derived from the case study results. These friendship pattern groupings were supported and variables were identified which distinguished between the three types. That typology of three friendship patterns has since been elaborated through consideration of the inter-relationships between interaction styles and friendship patterns and it has been argued that five different groups of individuals can be identified, with membership of each group having different implications for the individuals' friendships.

If the distinctions between these groups are indeed soundly based, then it should be possible to discriminate between them using a data base which includes the old friendship pattern variables (as used in the first discriminant analysis), and which also includes variables directly relevant to the interaction style dimension. A further discriminant analysis was therefore carried out based on the five friendship pattern/interaction style subgroups. If successful, this analysis would also identify the variables which best discriminate amongst the groups.

(i) Variables, Groups and Procedure

The derivations of all of the twenty-nine variables used in this discriminant analysis have been fully detailed earlier in this thesis. Variables 1 to 25 were fully described in Chapter 4, Section A, whilst variables 26 to 29 were described in Chapter 6, Section A. This data base integrates all the variables used in the multivariate analysis of friendship patterns (1 to 25) and the four variables used in the assignation of individuals to interaction styles (26 to 29). The data for Andrew and Malcolm were not used since they had not been assigned to either the difficult or well-adjusted interaction style groups. The names and abbreviations of the twenty-nine variables are as follows:

(1) NOCOMP: Number of companions.
(2) ASSBF: Association with best friend.
(3) SASSBF: Social association with best friend.
(4) PARBF/O: Parallel best friend vs. others.
(5) ACCBFS: Accuracy of best friend nominations in terms of social association.
(6) ACCBFASS: Accuracy of best friend nomination in terms of association.
(7) SAXBF: Social acts exchanged with best friend.
(8) SAGVBF: Social acts given to best friend.
(9) SARVBF: Social acts received from best friend.
(10) RATESABF: Rate of giving social acts to best friend.
(11) FRBF/O: Friendly acts, best friend vs. others.
(12) ORGBF/O: Organising acts, best friend vs. others.
(13) CONTBF/O: Contrary acts, best friend vs. others.

(14) SUMDIFF: Sum of all differences of (11), (12) and (13).
(15) CADBF/O: Counteradaptive acts, best friend vs. others.
(16) CADBF: Counteradaptive acts to best friend.
(17) SYS2XBF: Category system two acts exchanged with best friend.
(18) SYS2GVBF: Category system two acts given to best friend.
(19) RTSYS2BF: Rate of giving system two acts to best friend.
(20) L/FOLBF/O: Balance of leading and following acts, best friend vs. others.
(21) CNTRLGV: Controlling acts given.
(22) RCNTRLBF: Rate of giving controlling acts to best friend.
(23) CNTRLBF/OA: Rate giving controlling acts, best friend vs. overall.
(24) AC/DCBF/OA: Adaptive/dominating control balance, best friend vs. overall.
(25) FATT: Attention seeking acts given.
(26) ADPV: Adaptive acts given.
(27) PLUS: Plus acts given.
(28) MINUS: Minus acts given.
(29) ANNOY: Annoying acts given.

The names and abbreviations of the five groups on which the discriminant analysis was based are as follows:
(1) RBF: Reciprocated best friend.
(2) UBF/DIFF: Unreciprocated best friend/difficult.
(3) UBF/WA: Unreciprocated best friend/well-adjusted.
(4) PL/DIFF: Pluralistic/difficult.
(5) PL/WA: Pluralistic/well-adjusted.

The membership of each of these groups is given in Table 30.

RBF	UBF/DIFF	UBF/WA	PL/DIFF	PL/WA
ROY	WILL	JOANNE	HEATHER	SANDY
STUART	DONALD	EDWARD	GRETA	DAVID
JEMIMA	MANDY			

TABLE 30: DISCRIMINANT ANALYSIS: PREDETERMINED GROUPING OF SAMPLE MEMBERS INTO FRIENDSHIP PATTERN/INTERACTION STYLE GROUPS.

The discriminant analysis was carried out on an ICL Series 2900 computer, through the Edinburgh Multi Access System (EMAS 2900). Programme P7M, 'Stepwise Discriminant Analysis' from the BMDP statistical software package (1981) was again used, (F-to-enter standard default value of 4.0).

(ii) Results:

The discriminant analysis stopped after 8 steps with 6 variables entered into the classification functions. One variable (27, PLUS) had been initially entered and subsequently removed at a later step. The six variables entered (in order of entry) are as follows:

(25) FATT (attention seeking acts given).

(4) PARBF/O (Parallel, best friend vs. others).

(28) MINUS (Minus acts given).

(5) ACCBFS (Accuracy of best friend nomination in terms of social association).

(16) CADBF (Counteradaptive acts to best friend).

(15) CADBF/O (Counteradaptive acts, best friend vs. others).

The F-matrix presented in Table 31 shows the degree to which the final classification functions discriminate between each of the possible pairs of groups. The results reported there show that all groups are significantly discriminated from each other excepting one pair, UBF/WA and PL/WA.

	RBF	UBF/DIFF	UBF/WA	PL/DIFF
UBF/DIFF	115.42**			
UBF/WA	231.58**	33.56*		
PL/DIFF	38.40*	23.46*	88.02*	
PL/WA	290.85**	57.35*	6.80	110.79**

* sig. at .05 ** sig. at .01, 6 and 2 d.f.

TABLE 31: DISCRIMINANT ANALYSIS: MATRIX OF F-VALUES TESTING DISCRIMINATING POWER BETWEEN EACH PAIR OF GROUPS.

The discriminant analysis then re-classifies each individual according to its own classification functions. The resulting classification matrix, comparing original to new classifications is given in Table 32. It shows that the reclassification results are in total agreement with the original predetermined pattern

of grouping.

ORIGINAL GROUP	PERCENT CORRECT	No. OF CASES NOW CLASSIFIED INTO GROUP RBF	UBF/DIFF	UBF/WA	PL/DIFF	PL/WA
RBF	100.0	3	0	0	0	0
UBF/DIFF	100.0	0	3	0	0	0
UBF/WA	100.0	0	0	2	0	0
PL/DIFF	100.0	0	0	0	2	0
PL/WA	100.0	0	0	0	0	2

TABLE 32: DISCRIMINANT ANALYSIS: RECLASSIFICATION OF CASES COMPARED TO THEIR ORIGINAL ASSIGNATIONS

The analysis also gives 'goodness of fit' estimates for each individual to all groups in the form of posterior probabilities. In all twelve cases the posterior probability for the group to which the individual was assigned was 1.0 whilst the posterior probabilities for the four other groups was 0.0. Thus it is seen that all the reclassifications made by the programme are made with an extremely high level of confidence. None of the sample members show a significant degree of affinity with any group other than their own.

Figure 8 shows the dispersion of the sample members in the two dimensional space described by the first two canonical variables. Whilst there are four altogether, in this case the first two canonical variables account for virtually all of the total dispersion (99.6%). The first canonical variable alone accounts for 96.4% of the total dispersion. The members of each group are tightly clustered together whilst the groups are well dispersed from each other.

Group means and standard deviations for each of the five groups on all six entered variables are given in Table 33.

	RBF		UBF/DIFF		UBF/WA		PL/DIFF		PL/WA	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
FATT	2.59	2.34	5.33	1.67	8.07	0.54	0.51	0.72	3.53	0.93
PARBF/O	0.45	0.22	0.94	0.13	0.92	0.19	0.64	0.13	1.17	0.30
MINUS	2.8	1.4	11.4	9.4	1.0	0.4	7.2	1.3	2.3	0.8
ACCBFS	1.0	0.0	2.7	1.1	3.3	1.2	7.2	1.1	8.5	4.9
CADBF	7.7	2.2	2.6	4.4	3.1	1.0	4.4	6.3	3.1	4.4
CADBF/O	-2.0	3.7	-24.1	6.0	-1.1	0.7	-8.0	11.7	-6.7	5.2

TABLE 33: DISCRIMINANT ANALYSIS: MEANS AND STANDARD DEVIATIONS OF ALL GROUPS ON ALL SIX ENTERED VARIABLES.

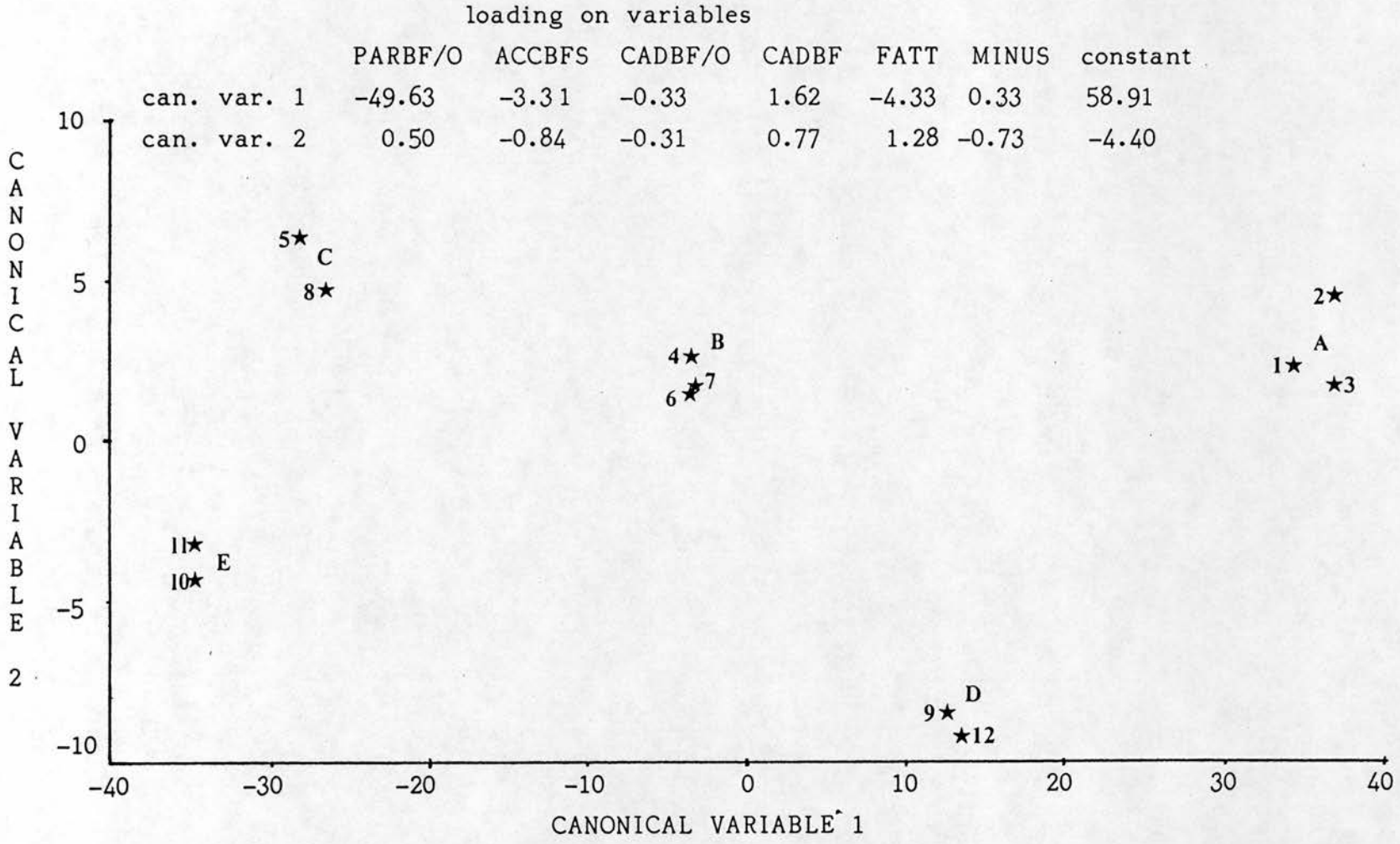


FIGURE 8: DISCRIMINANT ANALYSIS 2; DISPERSION OF SAMPLE MEMBERS ON CANONICAL VARIABLES
Cases labelled by case number, (1) Roy, (2) Stuart, (3) Jemima , (4) Will, (5) Joanne (6) Donald , (7) Mandy , (8) Edward , (9) Heather, (10) Sandy, (11) David, (12) Greta , (13) Andrew, (14) Malcolm, and by friendship pattern/interaction style group, (A) RBF, (B) UBF/DIFF, (C) UBF/WA, (D) PL/DIFF, (E) PL/WA.

Amongst these entered variables only one, MINUS, is a member of the group of variables which were used to assess interaction style - its results are predictable with the two difficult groups showing relatively high scores. It is also notable however that the UBF/WA score particularly low on this variable. Two of the other variables were also entered variables in the first discriminant analysis of friendship patterns reported in Chapter 3, ACCBFS and FATT. ACCBFS does not appear to discriminate strongly within the difficult and well-adjusted sub groups of the UBF and pluralistic groups. FATT does however show some discrimination within the new subgroupings - the UBF/WA group showed more attention-seeking acts than the UBF/DIFF and the PL/WA group more than the PL/DIFF group. Thus within both the UNRECIP BF and PLURAL friendship pattern groups, the well-adjusted children were making more attempts ot directly gain anothers attention. A very high level of direct attention seeking was thus particularly typical of the UBF/WA group. On the other hand the PL/DIFF group typically show extremely low levels of attention seeking. The PARBF/O variable most effectively separates the RBF group from others. It is not really relevant to the PL/DIFF and PL/WA groups (although some difference is apparent), as the best friend interactions of the pluralistic children are by definition, not particularly important - analysis has already been made in section B of this chapter, of their general levels of social involvement. The variable CADBF shows that the RBF group directed the highest frequency of counteradaptive acts towards their best friends - the other groups are not strongly distinguished. The related sixth variable, CADBF/O does strongly distinguish between UBF/DIFF and UBF/WA well-adjusted groups however - members of the UBF/DIFF group are characterised by strong swings towards less counteradaptive behaviour when with the best friend. There is some indication that the RBF and UBF/WA groups both tend consistently to show very small or negligible swings - this is probably associated with a tendency for these groups (at least in the case of the UBF/WA group) to show relatively little counteradaptive behaviour in all situations.

(iii) Discussion:

Despite the small number of cases in each group, the discriminant analysis was able to clearly distinguish all five groups although the UBF/WA and the PL/WA groups were not significantly distinct from each other. The pattern of assignation of individuals to all five groups was confirmed.

In creating classification functions two variables were entered which are known to discriminate between the RECIP BF, UNRECIP BF and PLURAL groups (FATT and ACCBFS), and one variable was entered which directly discriminates difficult from well-adjusted children (MINUS). The three other entered variables discriminated between various combinations of the five groups.

The RBF group were distinguished by three characteristics, perfect accuracy in nominating their best friends, marked swings from parallel to social involvement when with the best friend and relatively high frequencies of counteradaptive behaviour towards the best friend (all other groups show very little counteradaptive behaviour in best friend interactions). The last of these characteristics seems to indicate that the participants in a reciprocated best friendship do not have to constantly beware of upsetting their partner, but rather that they have confidence in the long term stability of the relationship and therefore expect disputes to be amicably resolved when they arise. Indeed the high frequency of sophisticated social involvement between RECIP BF children must result in many potential disputes arising as the individuals involved attempt to negotiate and carry out common schemes of action. Contrastingly the UBF/DIFF group show a marked avoidance of counteradaptive behaviour when interacting with their best friends, although to others they show it often - this would seem to indicate the insecurity of their unreciprocated best friend relationships. It should be borne in mind however, that the RBF group's rate of giving counteradaptive acts in the best friend relationship is, of course, low in comparison to the rate at which difficult children distribute them overall, outwith their best friendships.

Members of the UBF/DIFF group were characterised by

large swings away from counteradaptive acts when with the best friend and were clearly distinguished from the UBF/WA group in this respect. This disctinction between these two UBF groups was indicated previously in the discussion of case study results in this chapter (section B). The two UBF groups were also distinguished by the FATT variable - the UBF/WA group were typified by very high levels of attention-seeking whilst the UBF/DIFF are lower (although still high in comparison to RECIP BF or PLURALISTIC groups). This may reflect a greater interest amongst the well-adjusted UBF children in developing more intense interaction with others and with the best friend in particular. The UBF/WA group also showed exceptionally low levels of minus acts (whilst the UBF/DIFF group show more than any other group) - it seems that they were particularly cautious of offending or upsetting others as might be expected if they are keen to develop and maintain a higher level of social participation. The other two well-adjusted groups already had friendship patterns which better suited their needs.

The two pluralistic groups were also distinguished by the variable FATT with the well-adjusted group, PL/WA again scoring more highly, although in this case because the difficult group PL/DIFF showed extremely few attention seeking acts. This finding might reflect the difficult childrens' lack of interest in reciprocal interaction in which both the child and his partner play an important role in providing feedback and ideas for the other - direct attention-seeking acts are often requests for positive feedback and interest from another e.g. "look what I've got". Both the PL/DIFF children, however, tended to be bossy and dominating with others - they tended to be ordering, opposing or interfering with others rather than sharing interest with them. Since their interaction therefore tended to be one way, positive feedback, opinions and ideas were not often sought from others. The PL/WA seemed to be less accurate than the PL/DIFF group in nominating their best friends on the ACCBFS variable, although both pluralistic groups were poorer than all the other three groups in this respect. This may be a consequence of the PL/WA group having made wider contacts

in the nursery (as demonstrated by their larger ranges of companions). They thus had a larger range of familiar friends from whom they picked one when asked for a best friend nomination - the larger the range of suitable candidates, the lower the accuracy.

D: CONCLUSIONS:

The analyses reported in this chapter have shown that interaction style is a dimension of direct relevance to friendship patterns and that relationships between these two dimensions are better illuminated by examination of friendship patterns in terms of the friendship pattern typology rather than in terms of a few relevant unidimensional variables.

Analysis of the relationship between friendship pattern types and interaction styles showed a clear pattern of association between them. Firstly it was seen that only well-adjusted children had reciprocated best friendships. Amongst the unreciprocated best friendship group both well-adjusted and difficult children were found, but consistent differences were observed between the two subgroups, indicating that the well-adjusted children tend to be more socially active with their best friends and appear to be attempting to develop best friendships of the reciprocated best friendship type. The difficult children with unreciprocated best friendships would seem to have other reasons for being particularly friendly to the best friend as they show no evidence of wanting a closer personal relationship with him/her. Both difficult and well-adjusted children were also seen to have pluralistic patterns of friendship but again the two subgroups appeared distinct. The well-adjusted children appeared to be more actively involved in social interaction with others and at more sophisticated levels, although in this case a wide range of companions are involved. The difficult pluralistic children were less socially active and more bossy and dominating with others.

The five groups created by integrating friendship patterns and interaction styles were clearly identified by discriminant analysis of friendship pattern and interaction style variables,

and some differences were observed on discriminating variables which seem consistent with the distinctions made above between difficult and well-adjusted subgroups. The implications of this pattern of relationships between interaction styles and friendship patterns will be considered in relation to theoretical models of social development in the next and final chapter.

CHAPTER 8

CONCLUSIONS

This thesis has made an approach towards the study of children's social relationships from the perspective of the individual child. Friendships have been examined in relation to the child's general social behaviour and style of interaction with a view to understanding what different types of friendship pattern mean to the individual. In the past the friendships of young children have usually been looked at from a group perspective, using variations of the sociometric method of describing social structure. The first section of the conclusions will therefore briefly relate the picture of relationships built up in this thesis to a sociometric description of the same group, thus demonstrating how the more intensive individual approach has produced a richer understanding of the overall social structure. The second part of the conclusions will then go on to consider the theoretical implications of the findings of this study. In the introduction, three theoretical approaches to social development were described and competing predictions were derived from their respective models of the factors controlling early peer interaction. These predictions concerned the nature and content of the friendships and friendship patterns which might be found and their distribution within the group. The extent to which each set of predictions is supported by the results of this study will be assessed and the ability of each of the respective theoretical models to explain the peer relationships of children will then be considered.

(i) FRIENDSHIP PATTERNS IN RELATION TO GROUP SOCIAL STRUCTURE

In previous research the relationships of young children have usually been described in terms of a network or map of relationships. The techniques developed for this purpose are collectively known as sociometric techniques. Whilst many of the early sociometric studies were more concerned with children's friendship nominations rather than whom they actively played with, more recent studies of preschool children have tended to produce sociometric maps based on observational data relevant to the actual patterns of relationships existing in the group. In sociometric maps of this sort the frequency with which

individuals associate together is commonly used as a relatively quick and convenient measure of the strength of relationships (e.g. Clark, Wyon and Richards, 1969, Smith and Connolly, 1980). The more frequently any pair of children associate the stronger their relationship is assumed to be. However, the use of this relatively crude measure of friendship strength, in the absence of further analysis of the relationships, necessarily limits the value of sociometric maps of this type.

Frequency of association alone can be misleading, causing one either to overvalue or undervalue the real significance of particular friendships. Children can associate together frequently whilst engaging in very little direct interaction and, conversely, it is also possible for intense relationships to occur in the absence of high frequencies of association. It has been argued earlier in this thesis that a variety of types of evidence should be examined in the process of evaluating the significance or strength of friendships.

A second limitation of the standard observational sociometric technique is its failure to take account of the individual's role in initiating or maintaining any associaton observed. A frequent association between two individuals may be the result of either child following the other or of both wanting to be together, or even of mutual pursuit of a third person. All of these possibilities have different implications for the nature of the friendship. In recognition of this problem Strayer (1980) has devised a method of showing directional friendship bonds from observational data - affiliative behaviours (non-verbal) are measured for each member of the group and an arrow is then drawn between each child and the peer towards whom he/she directed the greatest proportion of affiliative behaviour. Such a system can better identify reciprocated best friendships (i.e. where two individuals are mutually linked by arrows), but no indication of the relative strength of the friendships is given. A link can be based on small or large absolute amounts of affiliative behaviour depending on the individual's overall production and distribution of affiliative acts amongst his/her friends. Furthermore there is no indication of whether the

'affiliative best friend' is distinct or not - the child might be similarly friendly towards a number of others or he may strongly concentrate his affiliative acts on one particular friend. Thus Strayer's sociometric maps only address certain aspects of individuals' friendship patterns, namely their one strongest behavioural friendship preference.

Figure 9 shows a standard sociometric map constructed for the sample members of this study. The precise methodology used is taken from Clark, Wyon and Richards (1969), a system which mainly differs from that of Smith and Connelly (1980) in that it organises the individuals concentrically according to the number of regular companions they have. Under both systems the same information about the 'strength' and range of friendships is available. Each sample member in Figure 9 is linked to every other individual with whom he/she was observed to associate for at least 15% of the observational sample time. Where non-sample members are involved (i.e. younger members of the nursery) they are included in the diagram as incomplete circles. Association links between two sample members could be assessed independently in the data samples of each individual - in such cases the two resulting frequency of association figures were averaged to give an overall figure. The strength of association link is indicated by the thickness of its connecting line - the stronger the link, the thicker the connecting line. The sample members are arranged within concentric rings according to the number of regular companions which they have (i.e. the number of significant links which they make with other children). The more regular companions a child has, the nearer to the centre of the diagram he will be placed. The sociometric map produced in this instance is incomplete in that the younger (non sample) members of the nursery group are not properly dealt with. However, all younger children who appear to associate regularly with sample members are automatically included, and thus a good description of the sample members network of association is given.

Inspection of Figure 9 shows that it does correspond with some of the findings of the individually based analyses carried

And: Andrew, Mal: Malcolm, Jem: Jemima, Cam: Camilla,
Hea: Heather, Jo: Joanna, Stu: Stuart, Em: Emily,
Ch: Christopher, Will: Will, Man: Mandy, Ros: Rosalind, Ang: Angus,
San: Sandy, Al: Alexander, Lo: Louisa, Gr: Greta, Ka: Kathleen,
Dav: David, Don: Donald, Ed: Edward, Row: Rowena

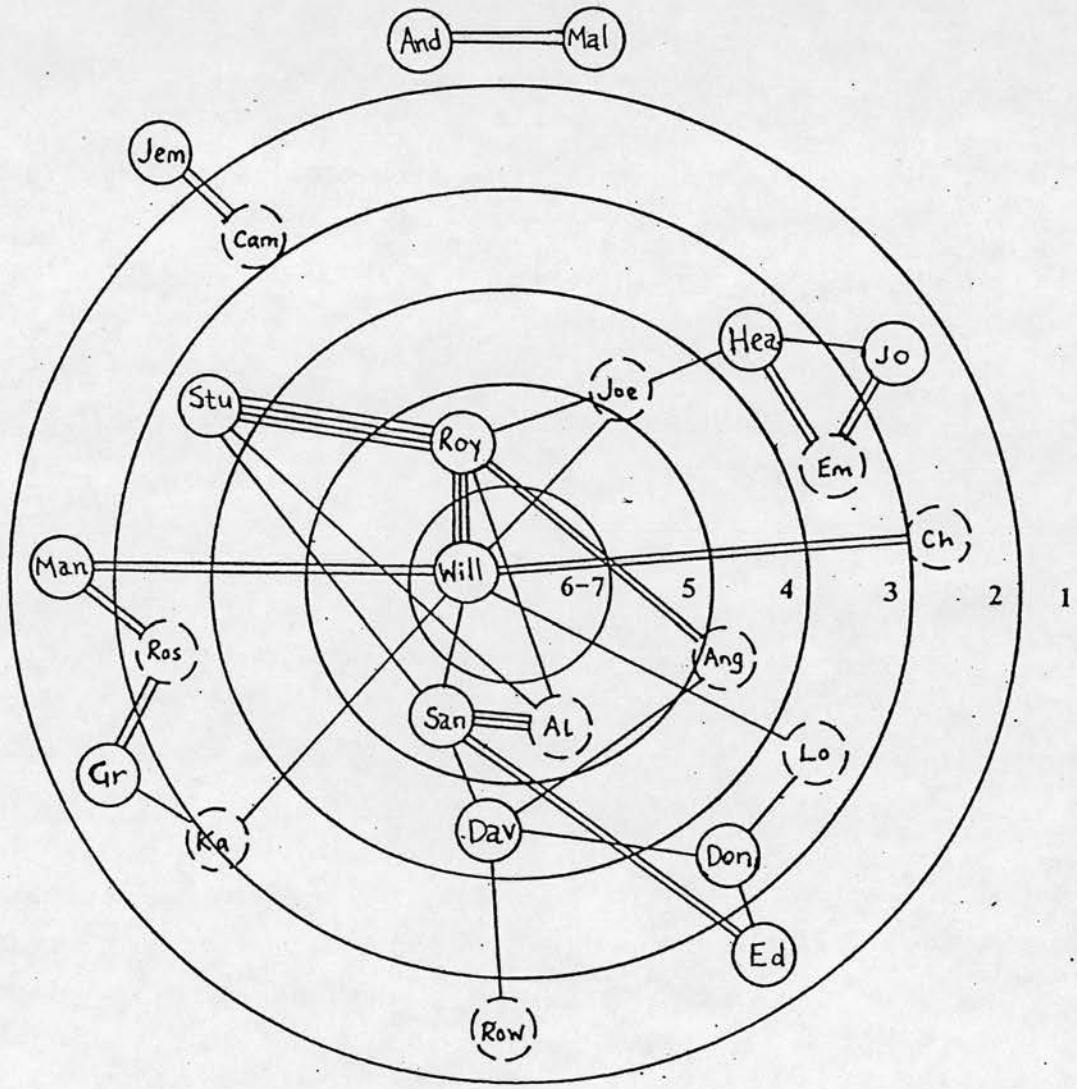


FIGURE 9: STANDARD SOCIOMETRIC MAP OF SAMPLE MEMBERS IN THE NURSERY GROUP

The ring in which an individual appears indicates the number of regular companions with whom he/she associated for more than 15% of the sample time. The actual proportion of sample time each pair associated is indicated by the number of bonds joining them.

- 15-20% = 20-30% ≡ 30-40% ≣ 40-50%

out in this thesis. Thus a strong relationship is indicated between Roy and Stuart, with Will connected somewhat more weakly with Roy. The triadic clique formed by Joanne , Heather and Emily also shows up clearly as does the isolated dyad of Andrew and Malcolm. At the centre of the diagram Sandy and Will are shown to have wide ranging patterns of association as shown in the case studies, although the higher criterion used here to determine significant companions (15% as opposed to 10% in the friendship pattern analysis) results in some shifts in the order of sample members on the range of companions dimension as varying numbers of each individual's weaker regular companions are eliminated. In this way Roy now appears to have a relatively wide ranging pattern of association on the sociometric map, whereas in the case studies he had only a moderate range of companions - he is unusual in having had none of his regular companions eliminated by the shift from a ten to fifteen percent criterion.

The sociometric map does not, however, provide a secure basis for discriminating the three different types of friendship pattern identified in this study. Of the members of the RECIP BF group, Stuart, Roy and Jemima , it is certainly clear that Stuart and Roy have a strong relationship together, and, particularly in the case of Stuart, it seems likely that this relationship is particularly important. Jemima 's relationship with Camilla does not appear particularly strong however, indeed her reciprocal best friendship seems no different from the relationship between Andrew and Malcolm. Closer analysis has shown this to be far from the truth - whilst Jemima and Camilla engaged in intense and sophisticated bouts of interaction, Andrew and Malcolm had only the shallowest of relationships. Thus in identifying RECIP BF children the sociometric map alone would seem to produce a false negative error in excluding Jemima . In the case of Sandy it might produce a false positive error. The sociometric map suggests that Sandy has a particularly strong friendship with Alexander whereas closer analysis showed that their relationship was of no special importance in terms of quantity and quality of

reciprocal interaction.

One could not realistically expect a sociometric map based on association to distinguish between children who are especially friendly to one friend but do not have a strong reciprocal friendship with them (UNRECIP BF) and children who show no such preferential friendliness (PLURAL), and indeed it is clear that these two groups of individuals are quite indistinguishable on the sociometric diagram. We have already seen that the pluralistic friendship pattern is not consistently associated with large ranges of companions (contrary to the assumptions of Waldrop and Halverson's (1975) extensive pattern) and so it is unsurprising to find that the pluralistic children, Sandy, David, Greta and Heather are not all clustered at the centre but spread throughout. Similarly, whilst three of the UNRECIP BF children, Mandy , Edward and Joanne have small numbers of companions and thus appear towards the edge of the diagram one, Will, is to be found in the centre of the diagram with the largest total of regular associates in the group. The relative strength of links between individuals and their friends also fails to discriminate between UNRECIP BF and PLURAL children - the association links between UNRECIP BF children and their best friends are not particularly strong.

Thus we see that the individuals belonging to each of the friendship pattern groups are scattered throughout the sociometric map in an apparently random fashion. The structural criterion imposed by the sociometric technique, namely that individuals should be arranged according to the size of their ranges of regular companions, is clearly not useful as an organising principle if one is seeking to portray the types of social relationships which children have within the group. Furthermore, friendship links based on frequency of association are seen to be an inadequate basis on which to judge relationships. Association measures alone frequently result in considerable overestimation or underestimation of the strength of particular friendships whilst also failing to take any account of the motives underlying the relationship and the roles of the participants in producing it. Reliance on frequency of association

measures could even lead to the assumption of a friendship existing in situations where neither of the individuals concerned wish to be friends with the other. Thus Pitcairn (1976), in a study of social grouping amongst monkeys, found that some pairs of individuals were frequently observed to be in the same huddling group yet were never seen in actual contact. Both individuals were attracted to the same group but within it they significantly avoided each other. They thus appear to have a mutually negative relationship in individual terms although consideration of their association within the same group would suggest a positive relationship. In the same way association measures could imply a falsely positive picture of personal relationships between individuals amongst groups of young children who regularly associate together.

At best, then, the standard sociometric map simply serves to show the groupings into which the individuals tend to form and the breadth of their range of regular companions. A more detailed picture of the relationships within my sample group can be given if the findings of the friendship pattern analysis in this study are added to the sociometric map. Figure 10 presents such a map. Significant best friend relationships are indicated by arrows showing their direction - where a RECIP BF relationship was found a pair of mutual arrows point in both directions. Unreciprocated best friendships are indicated by single arrows. In the one case where a subject was not already linked to the target of his unreciprocated best friendship by a significant association link, this link was made with a dotted line (Donald to Sandy). In addition to showing strong or close best friendships this diagram also gives the sort of directional information sought by Strayer (1980), indicating who is trying to be particularly friendly to whom. Furthermore, whereas Strayer's own system always singles out one and only one friend for each individual, Figure 10 shows all of an individual's regular companions, only specially marking out a relationship if there is evidence that the child behaves in a distinctly preferential way to the companion concerned. In some cases (the PLURALS) none of the child's companions merit

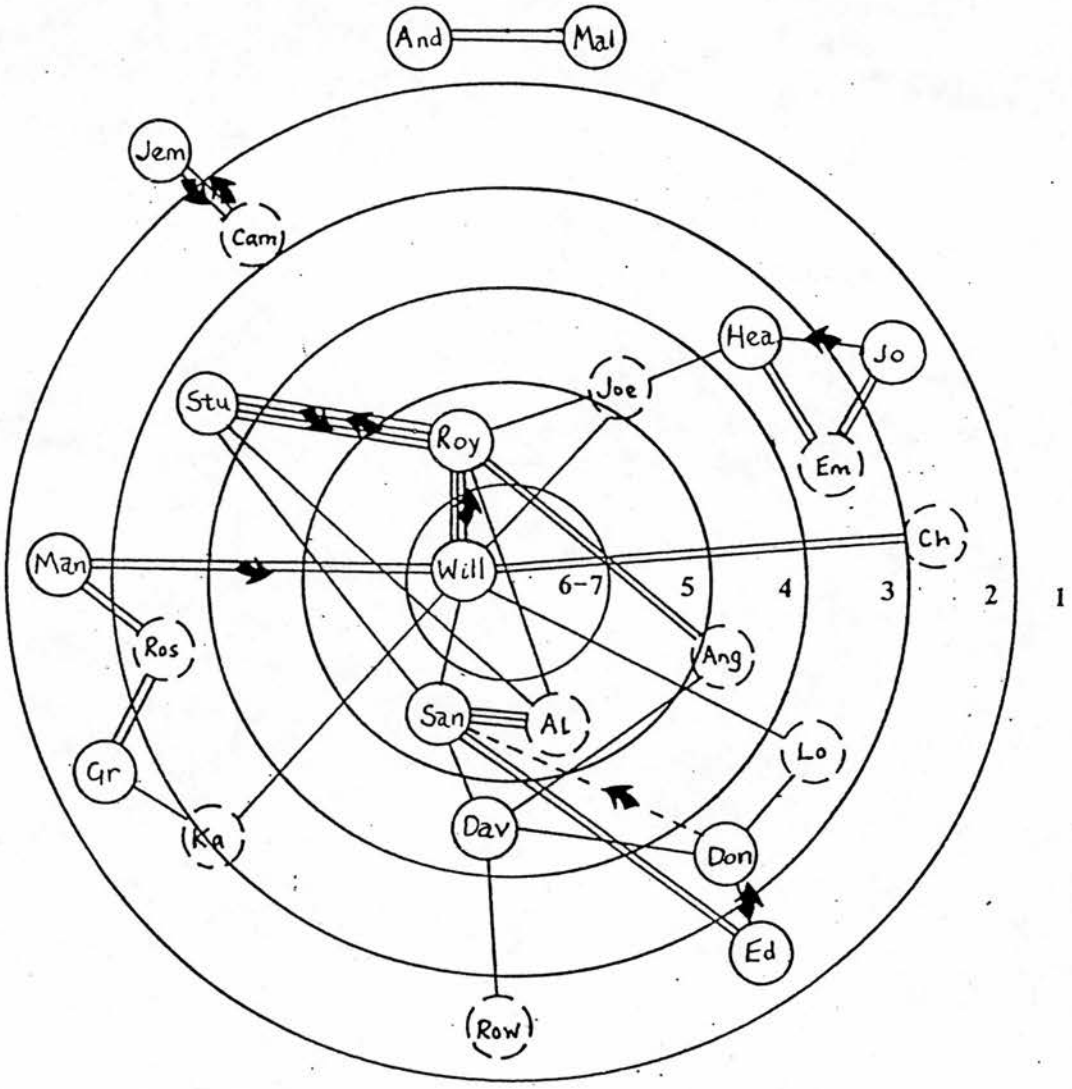


FIGURE 10: REVISED SOCIOMETRIC MAP OF SAMPLE MEMBERS IN THE NURSERY GROUP

The ring in which an individual appears indicates the number of regular companions with whom he/she associated for more than 15% of the sample time. The actual proportion of sample time each pair associated is indicated by the number of bonds joining them.

--- 10-15% - 15-20% = 20-30% ≡ 30-40% ≣ 40-50%

➔ indicates presence and direction of unreciprocated best friendship

➔➔ indicates reciprocated best friendship

For key to names see Figure 9.

particular attention (although in Strayer's system one would have to be chosen).

Figure 10 indicates many aspects of the group structure. It shows a wide ranging and relatively loose network of friends around Sandy and David, standing in contrast to the close relationship of Roy and Stuart, with Will as hanger-on. The importance of Jemima 's relationship with Camilla is shown and Joanne 's friendship aspirations are made clear (although in this clique it is unfortunate that Emily is not a sample member). A general principle seems to appear in that unreciprocated arrows usually seem to be directed towards the centre. In the one case for which this principle does not hold, Will, it was impossible for it to do so as the subject is himself at the centre of the diagram (his target is however as near the centre of the diagram as possible). Thus it appears that the targets of unreciprocated best friendships tended on the whole to be individuals with a greater number of regular friends than the subject concerned, particularly when the subjects had rather few themselves. It may generally be the case then, that UNRECIP BF children attempt to make friends with others whom they perceive to be more popular than themselves, although it was suggested in the last chapter that the motives of difficult and well-adjusted children in the UNRECIP BF group are nontheless quite different. It is interesting to note that the friendship targets of the difficult UNRECIP BF children (Donald, Mandy and Will) can all be seen as unrealistic choices if an intensive relationship was planned - thus Mandy and Donald aim at children who have wide ranges of companions when they themselves have considerably fewer whilst Will aims at a child who already has a very strong relationship with another. The well-adjusted children, however, aim at friends with only slightly more companions, near to them in the diagram. This pattern may reflect the difficult childrens' lack of interest in developing a close reciprocal friendship as previously suggested.

Figure 10 demonstrates that a sociometric map can be constructed which includes considerably more sophisticated

information about the group's relationships than does the standard association map. The different types of social relationships which are indicated on the revised map clearly could not have been identified on the basis of the information presented in the original standard sociogram. The standard sociogram provides an inadequate and often misleading picture of the social relationships in the group. The failure of the standard sociometric technique to reflect the different patterns of friendship occurring in the group is, of course, predictable from the results of the friendship pattern analysis reported in the first part of this thesis. It was shown there that the 'range of companions' variable appeared to represent an independent variable quite irrelevant to the type of friendship pattern which the child displayed. It was also shown that no single variable could be used as a reliable guide to the child's friendship pattern, but rather that individual analyses of relative patterns of behaviour with friends and others were required. There was no one group variable which could reliably identify close friendships and unreciprocated best friendship. A standard 'association' sociogram must be looked upon, therefore, as showing no more than the general patterns of grouping occurring amongst the individuals concerned. It does not provide an adequate representation of the personal relationships which the individuals maintain with their peers.

(ii) Theoretical Implications of the Findings of this Study:

In the introduction to this thesis it was shown that models derived from social-learning, social-cognitive and drive-to-sociability approaches all had differing predictions to make about the nature and quality of pre-school friendships. These three models all have particular implications which have been more or less directly tested in the course of this research project, and so the extent to which the evidence tends to support or fail them can now be assessed.

Perhaps the most basic issue on which the three competing theoretical models were seen to differ relates to the very nature of friendship relationships which might be expected amongst pre-school children. Social-cognitive models of children's

friendships imply that friendships in the preschool are only of a transient and short-term nature, mere partnerships of convenience formed as the children engage in common activities and immediately broken when they drift apart. In the most advanced friendships of this age group the child might (egocentrically) see his friend as someone who provides assistance for himself, but there should be no reciprocal give and take in such relationships and little likelihood of co-operation. Social learning theory was also seen to imply that preschool friendships are fragile partnerships of an unenduring nature, basedon the balance of social rewards which each provided for the other - friendships are not sought out for their own sake but are found where a pair of individuals find each other's company mutually beneficial. Thus both the social cognitive and social-learning approaches imply that the child views relationships with others from a short-term one sided perspective. The child should be seen to act in accordance with the dictum "you're my friend so long as you are nice and helpful to me". If the child does not perceive his companion as being nice or helpful then he at once ceases to be a friend.

The drive-to-sociability approach, on the other hand, suggests that pre-school children have long-term aims in their peer relationships and it can be taken to imply that, in some cases, these aims might result in commitment to a particular relationship with one other friend. Children are said to be motivated towards engaging in reciprocal interaction with others - if that is the case then an established relationship with another would seem to be a particularly fertile context in which a need for reciprocal interaction could be met, especially if more advanced forms of dyadic interaction are sought. Friendships with others might be sought out and maintained over the long term, supported by this consistent source of motivation in the face of short-term disagreements or lack of reciprocation.

The results of this study support the proposition that some pre-school children have long term aims in their friendships with peers and therefore contradict the predictions of the social cognitive and social learning approaches. The UBF/WA

group (unreciprocated best friend, well-adjusted) showed clear evidence of long term aims in their patterns of friendship. This group, despite a distinct lack of reciprocation on the other's part, appeared to be trying to develop closer relationships with their best friends. They appeared to persist in this aim despite a distinct lack of success, thus casting doubt on the social learning/social cognitive view that friendships are partnerships of convenience.

The RECIP BF group also provided examples of long term relationships although, in contrast to the UNRECIP BF group, both participants could be seen as providing each other with mutual benefits. Nonetheless these close friendships persisted over periods where one or other of the participants felt aggrieved or unhappy at the other's actions - close friends did not immediately end their relationships when a conflict of interests came about. Indeed it was found that the members of the RECIP BF group tend to receive a particularly high proportion of counteradaptive acts from their best friends, compared to the other groups - it seems that the stability of their established friendships allows them to worry less about being rewarding to their friend in the short term, as they know differences can usually be amicably resolved. There is certainly no evidence of the RECIP BF group making special efforts to be rewarding in the short term to their best friends, in the way that the unreciprocated best friend group were seen to do. On the contrary, their relationships seem characterised by long term commitment on both sides.

Given then that long term relationships are maintained by some children and sought out by others, the question of the function of these friendships arises. What can these children be getting, or hoping to get, out of a close friendship which they cannot equally well achieve through associating with whoever happens to be around?

The social sophistication of the interaction which occurred within reciprocated best friendships supports the prediction derived from the drive-to-sociability approach that the function of close friendships might be to provide especially fertile

contexts for reciprocal interaction and that they might therefore arise from the proposed drive to engage in interpersonal dialogue. The reciprocated best friendships which were found provided a significantly enhanced quality of social involvement for their participants and when with their best friends the RECIP BF children became engaged in a great deal of cooperative and coordinated play. Thus advanced forms of reciprocal interaction did appear to be a major feature of close best friendships. It seems reasonable to suggest that, for the children involved in close friendships, this quality of interaction was one of the most important and fundamental benefits of maintaining such a relationship.

It is not possible to unravel the cause and effect relationships which may underlie this association between close friendships and sophisticated social interaction. It may be that the most sophisticated children develop close friendships in order to exercise already highly developed social skills. Alternatively the greater social sophistication of close friends may be the result of their close friendships having provided them with stable dyadic relationships which in itself has promoted sophisticated activity. It does seem clear however, that 'socially sophisticated' close friendships are not a stage of social-cognitive development through which all young children should pass. If close friendships fitted into a social-cognitive stage model in this way, then one would expect them to appear amongst the older (and presumably more cognitively advanced) members of the nursery - in fact the three friendship pattern groups were indistinguishable in terms of age. It appears, rather, that children's friendship patterns may reflect aspects of individual differences which exist amongst individuals at similar stages of development, although a longitudinal study is required to assess whether they remain a stable characteristic of the child's behaviour throughout his childhood.

The sophistication of the interaction observed between close friends is directly relevant to the predictions of the social cognitive approach. Social cognition research has shown that the preschool child's abstract conceptions of friendship are rather

unsophisticated (e.g. Selman, 1981), and even Rubin and Pepler (1980), who argue that Selman's model underestimates the abilities of young children acting in naturalistic social contexts, still state that the behaviour of preschool children typically shows "a focus on one individual at a time, either the own or the other's, without a coordination of viewpoint" whilst also betraying "little understanding of reciprocity". Yet it has been seen in this study, that the actions of some children (the RECIP BF group), acting in the natural social context, revealed more advanced relationships than would be expected on that basis - the social cognition predictions stated in the introduction have thus been seen to underestimate the quality of relationships which would be found. This discrepancy between social cognition research findings and the observational evidence reported here seems to reflect a type of performance/ competence distinction. Thus, for example, the child engages in cooperative give and take for the sake of maintaining his friendship (performance) before he becomes aware of the need to do so as a feature of friendship in general (competence). It may be that the ability to conceptualise about friendship at various levels of sophistication only grows out of repeated experience in real social situations, situations which are personally important to the child. Consequently, instead of looking upon children as being limited and restricted in their relationships by the current state of their conceptual understanding of friendship, we might better think of preschoolers as learning to manage their relationships through experience in immediate social contexts and thus laying the groundwork from which more general and abstract concepts will derive. One striking conversation between Roy and Stuart does indeed suggest that, at least within the immediate context of their own close friendship, they are both aware of the reciprocal nature of their relationship, despite the fact that Selman (1981) doesn't find reciprocity amongst children's abstract conceptions of friendship until at least age 6 (Stage 2). The following conversation occurred after a dispute over toy cars which arose within a long bout of social play between

Roy and Stuart.

Stuart: "I won't ever come to your house again."

Roy: "Why?"

Stuart: "'Cos I want two." (Stuart wants two toy cars).

Roy: "All right then but it's not fair" (Roy gives Stuart car).

"I'm not coming to your house ever again."

Stuart: "I'm coming to your house."

Roy: "All right but I'm not coming to your house."

Stuart: "Everyday I wish I could come to your house and everyday I wish you could come to my house."

In this conversation one should interpret 'coming to your house' as 'being your friend'. Amongst the older children coming to someone's house is a strong sign of friendship on the side of the child who comes - the significance of such visits is probably related to the fact that preschool children do not normally choose the social contexts in which they find themselves but visits to other children's houses are rare occasions in which a child can exercise a clear element of choice and is clearly seen to have an active role in specifically seeking out an other's company on foreign territory. The above quotation shows each child using his friendship as a bargaining counter. Although at first it may seem as if they do consider it possible for the relationship to exist on the basis of one child giving friendship whilst the other does not reciprocate, the final statement clearly indicates that a one-sided friendship is not considered adequate, and that Stuart (at age 3:9) is aware that their friendship relies on both members 'being friends' with the other. Stuart has understood simultaneously the difference in perspective between Roy and himself and he seeks to resolve this discrepancy which he perceives to be important. In the context of a minor crisis in his own best friendship Stuart thus showed a sophisticated understanding of relationships well in advance of the level which the models of Selman (1976) or Rubin and Pepler (1980) would predict.

A close friendship, with its apparent benefits in terms of social sophistication, did not appear to be universally desired,

however, by all sample members. Only 3 of 14 sample members actually possessed such a relationship and of the 5 other individuals who were observed to show preferential behaviour to their best friend only 2 showed evidence of wanting to intensify the relationship. A wide range of individual variation was thus observed. The second phase of this research project directly related the pattern of individual differences in friendship patterns to the interaction style model of Manning (Manning & Herrman, 1981) from which predictions were initially derived in the introduction. Manning's model of interaction styles clearly implies that strong friendships should only be desired or maintained by children with well adjusted styles of interaction. The maladaptive social needs of difficult children are said to result in them having only immediate short term aims in their interactions with peers, aims which interfere with a more natural motivation to engage in reciprocal interaction.

The results of the friendship pattern/interaction style analysis clearly confirm the predictions of Manning's theoretical model. Firstly it was found that only well adjusted children had reciprocated best friendships. It was also shown that, although both well adjusted and difficult children were found amongst the unreciprocated best friendship group, the children of each interaction style formed distinct subgroups which could be clearly distinguished on the basis of the observational data. The differences observed between the UNRECIP BF/WELL ADJUSTED (UBF/WA) and UNRECIP BF/DIFFICULT (UBF/DIFF) groups support the prediction derived from Manning's model that only well adjusted children should be interested in developing a close friendship. The two UBF/WA children both showed signs of wanting to intensify their best friend relationships and engage in a larger level of sophisticated interaction with the individual concerned. Their patterns of behaviour to the best friend thus seemed aimed towards obtaining a reciprocated best friendship pattern, although both were meeting little success - indeed one might speculate that they may meet more success if they concentrated such attention on well-adjusted sample members (both had chosen 'difficult' best friends). The UBF/DIFF

children, on the other hand, showed no evidence of wanting to develop close friendships with their best friends. Their preferential treatment of the best friend seemed to be designed to avoid upsetting or conflicting with the best friend rather than to engage them in bouts of interaction - they were simply being ingratiating or respectful to the friend concerned. The sociogram presented in Figure 10 suggests a factor which might explain this ingratiating behaviour. In all three cases the best friends of the UBF/DIFF children have large ranges of companions (see Figure 10), and might thus appear to be socially successful and popular to their peers. It is possible, then, that the UBF/DIFF children are currying favour with individuals whom they think could help them gain frequent access to play groups. This explanation does put Will in an ambivalent position - he already seems to have many friends (and thus it is reasonable that Mandy seeks favour with him) so why should he be especially friendly to another (Roy)? Why should he perceive another peer who actually has fewer regular companions as being worthy of special attention? The answer may be that Will is attracted towards playing with older peers, and he sees his best friend as a way into such groups - four of Will's regular companions are younger non-sample members yet it was seen tha he frequently hung on to the periphery of Roy's play activities, Roy being the second oldest member of the sample. Despite this attraction to Roy however, Will did not show any signs of wanting to develop a higher level of reciprocal interaction with him. He is attracted to Roy and/or his play activities but not with the aim of forming a close friendship with him.

However, although it was found that only well adjusted children already had or were attempting to develop a close friendship with one special friend, it was not the case that all well adjusted children fell into one of these two categories. Two well adjusted children were seen to have pluralistic friendship patterns, and thus showed no evidence of wanting a close best friendship at all. Close analysis of their friendship patterns showed however, that their lack of interest in close friendships

did not imply a generally low interest in social interaction. Comparison of the well adjusted and difficult member of the PLURAL group showed that the two subgroups were again quite distinct. The two PL/WA children, Sandy and David, showed very similar wide ranging patterns of association - they were both found to be highly active socially and keen to get socially involved with their companions. Both were in fact frequent participants in large group noisy fantasy play of a coordinated nature, in groups which mostly consisted of boys. This grouping can be detected on the sociogram given in Figure 10. Sandy often appeared to be the leader of play groups whilst David was a rather less dominant figure. The PL/DIFF children, Heather and Greta, on the other hand, had fewer friends and engaged in less interaction with them - both tended to be rather bossy and dominating.

Overall then, the analysis of the relationship between interaction styles and friendship patterns has tended to support Manning's model of the aims and motives of well adjusted and difficult children. Manning and Herrman (1981) describe well-adjusted children as being "mainly concerned with communicating, sharing and co-operating" and go on to say that "well adjusted children usually enjoy developing cooperative interactions and treat all others as friends and partners in this". In contrast they describe difficult children in the following terms: "difficult children more often appear to pursue other aims, which are centred on themselves and which involve manipulation of others in ways which they may well resent". It is stressed that the self-centredness of difficult children does not necessarily derive from an inability to perceive the others point of view (i.e. Piagetian egocentricity), but rather that they will often ignore or actively counteract another's perceived desires in pursuit of their maladaptive social aims.

Analysis of the friendship patterns of well adjusted and difficult children in this study has shown that all the well adjusted children show a greater inclination to become socially involved with other children, whether within a close friendship or in large group play. Five of the well adjusted children show

friendship patterns which are qualitatively different from those of any of the difficult children in that they maintain or seek a special close friendship with the best friend - such close friendships feature a high level of co-ordinated and co-operative interaction and thus would seem appropriate for well adjusted (and not difficult) children in terms of Manning and Herrmann's descriptions given above. The difficult children showed friendship patterns which appear to reflect social aims which are "centred on themselves" in that they show no interest in close relationships and show little interest in reciprocal interaction. The PL/DIFF children specifically, showed signs of "manipulation of others in ways which they may resent" in that they were seen to be domineering, bossy and uninterested in feedback from companions. The particular aims and motives which Manning attributes to the two types of difficult child she identifies cannot be investigated as it was not possible to separate out these two subgroups in my sample, however their common self-centredness is apparent in the patterns of friendship of all the difficult children.

In the introduction to this thesis predictions were also derived from social learning theory relating to the pattern of individual variation which might be found in friendship patterns. Social learning theory states that there are no fundamental differences in the aims of children engaging in social interaction. All children are assumed to have the same general aim to gain effective command of resources through interaction with others. An extensive friendship pattern with many companions is seen to be the optimal pattern as the major function of friendship is said to be in providing easy access to play groups. It was thus predicted that the most socially competent individuals should tend to have wide ranging patterns of friendship amongst themselves. Close friendships, on the other hand, might be predicted amongst children who have difficulty gaining access to groups as their need to concentrate on one individual for group access would therefore be greater.

The first of these predictions can be tested if we assume

that the well adjusted group essentially consists of the more socially competent members of the sample, thus shedding the underlying theoretical distinction which Manning makes between the aims and motives of the difficult and the well-adjusted groups. Given that the two groups were distinguished on the basis of their performance of positive and negative social acts this assumption seems quite reasonable. It can then be firmly predicted, on the basis of the social learning model, that the well adjusted sample members in this study should tend to have larger, more wide ranging patterns of friendship and that they should thus be found clustered towards the centre of the sociogram constructed for the group (Figure 10), with the difficult sample members in peripheral positions. This prediction puts to the test an assumption often made in past sociometric studies (and one which underlies the format of the standard observational sociometric map), that the number of friends a child has in a direct measure of the child's social success in the peer group and therefore that all children want to have as many friends as possible.

Inspection of Figure 10, however, shows that the socially competent (well-adjusted) children did not consistently associate in wide ranging patterns amongst themselves. Some did, notably the two pluralistic/well adjusted children, Sandy and David, but others were seen to associate regularly with very few friends. The difficult children also vary widely in the extensiveness of their friendship patterns and are therefore not distinguishable in this respect. This first prediction thus seems to be firmly denied with the evidence.

The second prediction, that close friendships should appear amongst individuals who otherwise have difficulty getting into groups, also failed to receive support from this study. Whilst the close friendship of Jemima might fit the predicted pattern in that she had few other friends and was alone quite often, the friendship of Roy and Stuart clearly runs counter to it - neither Stuart nor Roy seemed to have trouble in finding companions. Indeed Roy seemed to be a popular individual sought out by others and his extremely strong best friendship

could hardly, therefore, be explained simply in terms of seeking out company with others. Moreover it was demonstrated that children with close friends (RECIP BF) were indistinguishable from the two groups who were without close friends (UNRECIP BF and PLURAL) in terms of the amount of time they spent alone or unoccupied. Thus friendship pattern appeared to have no effect on the child's ability to find companions. Unless the children seriously mis-perceived this situation they must have had other aims in developing or trying to develop lasting relationships.

The finding that only well adjusted or socially competent sample members appeared to want to develop close friendships raises further fundamental problems for the social learning model. If all children have the same aims in social interaction with peers, then socially less competent (difficult) children should be just as likely to want close friendships (leaving aside the question of their function) whether or not they are equally successful in attaining them, given that both types of child are found in both central and peripheral positions in the social structure. The difficult children however, even in relatively peripheral positions, showed at best only rather shallow attempts to be ingratiating to 'popular' others and did not attempt to develop close friendships. Well adjusted children in similar positions, if they did not already have a reciprocated best friendship, did show signs of trying to develop one.

There seem to be real differences, then, between difficult and well adjusted children in similar social positions, not only in their skillfullness in achieving social objectives, but also in the aims and objectives themselves. Such differences in social aims run counter to the basic promises of the social learning model.

Overall it has been seen that the predictions derived from the drive-to-sociability approach fared better than those derived from the social-cognitive or social-learning approaches. The more general implications of the findings for these latter two approaches to social development can now

be developed.

Although this study did not confirm the predictions of social-cognitive stage theories, nonetheless such stage theories could still apply in a modified form. A revised set of age ranges for the development of children's social cognitive abilities in the real-life context of relationships important to the child could fit in with the results reported here, whilst still allowing that in terms of out-of-context abstract reasoning about friendships the same children will tend to perform at a lower level.

Within any group of peers, social-cognitive factors could also play a role in influencing the type of peer relationships maintained by particular individuals. Whilst it was argued earlier in this chapter that degree of social-cognitive maturity or insight does not directly determine friendship patterns, and that such abilities can be used to different ends depending on the aims of the child in peer interaction, nonetheless a relatively less mature level of social cognitive ability may be a factor which restricts the choice of goals (or ability to attain goals) open to an individual. In the absence of formal measures of social-cognitive abilities the present study cannot come to any conclusions on that possibility.

Social-learning theory encountered more fundamental problems in accounting for the findings of this study. It did not appear to be the case that the children organised their social relationships with the sole aim of maximising their control of services and resources through achieving social status. The nature of close friendships, the main feature of which seems to be an enhanced intensity and sophistication of reciprocal interaction, does not appear to fit this model. It might be argued that reciprocal interaction could be seen as a secondary reinforcer in a modified version of social learning theory; however, for that to be justifiable, it would have to be demonstrated that the value and effectiveness of reciprocal interaction as a reinforcer is directly related to benefits which it gains for

the individual in terms of primary reinforcers. The same argument would also apply to the infant's engagement in sequences of reciprocal interaction at earlier stages - in neither case has such evidence yet been produced.

At a less fundamental level, there is no cause to doubt that social-learning processes do occur with respect to whatever social aims a child does have, and that these processes result in the construction of a repertoire of strategies and social skills. If one accepts the proposition that preschoolers act in accordance with a range of more or less adaptive social aims (as stated within the drive-to-sociability approach), then the range of social skill repertoires found amongst peers can be seen not just as a reflection of more or less effective social learning, but also as expressing differences in the types of skills and strategies that a child finds it appropriate to learn when pursuing his/her particular social goals. A child who aims primarily to dominate his/her peers will be motivated to learn different (and less socially acceptable) strategies than one who seeks to engage in reciprocal interaction with peers. Nonetheless, given children with similar aims in their peer interaction, relatively poor social skills 'knowledge' or competence might be a factor which sets limits on the type of relationships which a child will develop, ruling out certain possibilities.

In general then, it can be concluded that a complete account of children's social relationships will probably include aspects of all of three theoretical approaches considered in this study. A model of that sort will be based on interaction between factors of social cognition, factors of social skills learning and factors relating to the aims which the child is pursuing in social interaction. The findings of this study have stressed the importance of giving full consideration to the last of these factors.

FINAL CONCLUSIONS AND FUTURE DIRECTIONS FOR RESEARCH

The major findings of this study can be summarised in terms of four major points:-

Firstly this study has shown that preschool children are able to behave differentially towards different peers. They can adjust their social behaviour according to its intended recipient and establish long term social goals in their relationships with their peers. Within their best friendships children can show an understanding of the nature of social relations well in advance of the social cognitive abilities which they seem to express in contexts of lesser personal importance.

Secondly it has been shown that a wide range of individual variation is apparent in the patterns of relationships formed by children within the same group. These various friendship patterns can be clearly classified in terms of three types. The first type of friendship pattern is distinguished by one particularly strong best friendship in which the child's special attention to his best friend is seen to be reciprocated. In the second type of friendship pattern the child is seen to act in an especially friendly manner towards a best friend but does not appear to receive special attention in return. In the third type of friendship pattern no one friend appears to be treated preferentially, but rather the child treats a number of friends in a similar fashion. These friendship patterns have no implications for the number of regular companions the child has.

Thirdly we can conclude that the function of the close best friend relationship in the preschool probably lies in the facilitation of more advanced levels of social interaction between the children involved. Children with close friendships make gains in the quality of their interaction episodes rather than simply in terms of their ability to find companions or the friendliness of the behaviour they receive. Close best friendships provide a stable context within

which cooperative activity can be attempted and explored by the participants with a lower likelihood of the interaction breaking down, even although conflicts of interest may actually arise more frequently in their relatively intense and interdependent play.

The fourth conclusion is that friendship patterns seem to reflect, and be determined by, fundamental differences in the social aims and motives of at least two major 'types' of individual, represented by the well adjusted and difficult styles of interaction. As predicted by Manning's model of interaction style, well adjusted children appear to have friendship patterns which reflect a motivation towards engaging in reciprocal interaction with peers for its own sake, whilst the relationships of difficult children suggest a more self-centred orientation related to a strong motivation to seek satisfaction of immediate social needs. Consequently it is only well adjusted children who seek to create or maintain close best friendships, and even amongst pluralistic children the well adjusted ones are more socially active.

However the final conclusions are necessarily tentative given the limitations of the design of the study. The validity of the results reported needs confirmation for a number of reasons. Three main reservations might be expressed:-

Firstly, the studies conclusions are based on the evidence of a small number of individuals. Whilst the intensive analysis of a small sample had important advantages in terms of providing a detailed and coherent picture of the children concerned, it has disadvantages in that it provides a less valid basis for generalising the results obtained to the population at large (relative to a large sample study). The children in this study may have shown untypical or idiosyncratic patterns of behaviour. The two phases of categorisation involved in this project meant that only two or three children remained in each of the final sub-groups - these are clearly very small samples.

The fact that the findings of the study are based on analysis of only one nursery group is a second factor which limits the validity of its results. This nursery group contained a population of children which was subject to certain biases (e.g. sex, social class), and it may be that other nursery groups with other biases would produce different results.

Thirdly, it might also be argued that a study of this nature, which creates a descriptive framework and then deliberately seeks evidence of relevance to it, runs a risk of overemphasising the significance of its initial model and of being insensitive to alternatives. In so far as an initial model directs and structures one's exploration of a phenonmenon, it also necessarily tends to preclude other possibilities.

Stronger validation of the results of this study might be provided in a number of ways:-

Replication of the studies results might be attempted in other nursery samples, samples with similar or with different biases in their populations. Clearly the more widely the results of this study are replicated the more general their validity can be assumed to be, although good replications in very similar populations would at least enhance the studies validity within a limited context.

The sample members in this study could also be followed up at a later date; if the sub-groups of individuals contrasted in this study are still found to be showing distinctive patterns of relationships at a later stage, then it would appear that the findings reported here did identify important differences amongst the sample members. The question of how far the results can be generalised to other populations of children is not addressed by a follow-up study however.

Finally, the validity of the results of this study might be confirmed by studies which relate friendship pattern type to other dimensions of individual differences which

are independent of observational measures of social behaviour. The cognitive ability of role-taking would be an appropriate dimension of that nature (particularly as such a study could also extend the theoretical debate). Any firm associations found between friendship patterns and other well established independent dimensions of individual differences would tend to confirm the validity of the friendship pattern model.

Further research should also be directed towards extending the theoretical debate discussed earlier in this chapter. It was suggested there that individuals' patterns of friendship may be largely determined by interaction between three types of variables, the nature of the child's social aims as reflected in interaction styles, the level of the child's social cognitive abilities and the child's competence in social skill strategies. All of these possible factors could be explored further.

The validity of Manning's model which distinguishes different types of social aims and explains their origins in terms of particular features in the child's family relationships (see p.120), could be further examined with particular reference to friendship patterns. Thus the friendship patterns of children with 'well-adjusted', 'dependent' and 'aggressive' interaction styles could be compared using larger samples of children, and data could be collected on the nature of the child's interactions in the home. Manning's argument that family interaction factors strongly influence peer interaction through affecting social aims would be strengthened if appropriate associations were found between family interaction and friendship pattern variables. The question of whether 'dependent' and 'aggressive' children show different patterns of friendship, reflecting different social aims, could also be specifically addressed.

The relationship of social cognitive factors to friendship patterns could be more thoroughly explored by taking formal measures of children's social cognitive

abilities (e.g. role taking skill) and looking for associations between these measures and friendship patterns within the same sample. As was suggested earlier in this chapter, relatively poor cognitive ability may be found to restrict the type of relationships which a child will form.

Measures of social skills could also be usefully involved in future research in this area. Whilst it may not be constructive to consider children's repertoires of social skills without regard to the aims and goals which they have tended to pursue when developing these repertoires, nonetheless if one isolated groups of children which could be assumed to share the same social aims (e.g. well-adjusted children), associations could be sought within these groups between the nature of the individuals' social skills repertoires and the types of friendship patterns they have formed. In this way the independent contribution that social skills learning makes in influencing friendship patterns might be assessed.

The results of all three of the above types of research might further explain some of the variability in friendship patterns which could not be properly accounted for in this study; for example, do some well-adjusted children develop reciprocal best friendships whilst others develop pluralistic patterns?

Other research projects might also attempt to further clarify the nature of close friendships. In older children, Foot, Chapman and Smith (1980) found evidence of closer response matching between friends than non-friends. Similar techniques of fine grained behavioural analysis of children's behaviour in experimental situations could be used to look for subtle differences between RECIP BF and PLURALISTIC children interacting with their best friends. RECIP BF children might be expected to show a greater degree of co-ordination if they do especially seek reciprocal interaction within these friendships.

Finally, longitudinal studies would be valuable in

indicating the extent to which friendship pattern type is a stable characteristic of an individual's social behaviour throughout life. It is important to known whether the nature of the preschooler's pattern of friendship has implications for the course of his/her future social and personality development, if their significance is to be properly assessed.

Leaving aside the specific proposals given above, this thesis has put forward a framework for describing friendship patterns which could be used by any future research project concerned with the peer relationships of preschoolers. Each of the different friendship patterns described show different patterns of scoring over three important variables. Children with reciprocated best friendships tend to nominate as their best friends those individuals with whom they most often become seriously involved - they also tend to receive a large number of social acts from their best friends but produce only a moderate amount of attention seeking behaviour. Unreciprocated best friendship patterns are associated with a tendency to nominate as best friend individuals with whom the child is moderately often socially involved, and also with a tendency to receive few social acts from the best friend and to produce a high amount of attention seeking behaviour. Lastly, the pluralistic pattern is characterised by a tendency to nominate as best friend individuals with whom the child is rarely socially involved, and also a tendency to receive few social acts from the best friend and produce only a small amount of attention seeking behaviour. Using loadings provided by the discriminant analysis and scores on these three variables the three friendship pattern groups can be separated in two dimensional space. In order to select best friends and then derive the above three variables for a given group of children only, six types of raw data are required for each individual:
1. Interview choice data (1st, 2nd and 3rd nominations);
2. Frequency of association with each peer; 3. Social

involvement level; 4. Number of social acts received from each companion (per 2 hours if discriminant analysis loadings are to be used); 5. Number of social acts given to all peers; and 6. Number of attention seeking acts given to all peers. The subjects' best friends and scores on the three variables can then be derived according to the procedures described in Chapters 3 (p.55) and 4 (pp.80 and 83), and the individuals assigned to friendship pattern groups in a relatively economical fashion.

I shall finish, therefore, by expressing the hope that the approach to children's friendships developed in this thesis will be given consideration in future studies of peer relationships and that their role in social development will be further explored.

APPENDICES

APPENDIX A: NURSERY MEMBERS' NAMES AND AGES

Sample Members (pseudonyms):

Heather		4:7
Roy		4:4
Donald		4:3
David		3:11
Edward		3:11
Jemima		3:11
Greta		3:11
Andrew	Twins	3:10
Malcolm		
Joanne		3:10
Mandy		3:9
Stuart		3:9
Will		3:8
Sandy		3:8

Others

Angus		3:7
Joe		3:6
Katherine		3:6
Camilla		3:4
Louisa		3:3
Alexander		3:3
Iain		2:9
Christopher		2:8
Rowena		2:6
Emily	(Twins not present	5:0
Rosalind	at start of study)	

APPENDIX B: ACTIVITY CATEGORIES (CATEGORY SYSTEM ONE)

1. Manipulative Play

An activity which involves handling things - cars, water, clay, dough, barrels, trucks - but is no more than this, i.e., nothing is being constructed, there is no fantasy about the object, and the object is not being examined and explored.

2. Constructive Play

Making things, painting, puzzles, junk, roads in sand, etc.

3. Fantasy Play

Includes all play of any type (physical, constructive, manipulative) which is part of a fantasy.

1. object play pretending toy objects are real (cars, trains) by appropriate actions and noises
   building bricks or blocks into a fantasy object (ship, bonfire)
   acting roles in fancy dress on one's own.
2. domestic - family, pets, cooking, washing, shopping
3. occupational - doctors, firemen, postmen (not soldiers or robbers)
4. adventure - car, bus, boat trip, mysteries
5. fighting
6. monsters/magic - daleks, witches, Tarzan

4. Rhythmic Play

Music, marching, dancing to music

5.	Physical Play	(if not part of fantasy) Controlled - swings, seesaw, skipping, climbing Uncontrolled - running, chasing, rough and tumble
6.	Exploration	Investigating objects or places (if not fantasy)
7.	Maintenance	Clearing up, washing hands, dressing, snack, etc.
8.	Preparing/Planning	Getting ready for game or activity, discussing plans, getting paints, etc.
9.	Quiet activities	Waiting for turn or teacher, listening, reading (quiet, inactive, but doing something)
10.	Transitional	Moving from one place to another
11.	Interacting	Talking to or interacting physically with another (if not part of another activity). This includes hostility and fighting which may occur as an interruption to another activity such as a fantasy game
12.	Onlooking	Watching other children playing (if not during another activity (e.g. snack)
13.	Unoccupied	Wandering, sitting, looking around
14.	Teacher-controlled	Any activity performed under the direction of the teacher

15.	Game	An organised game, e.g., hide and seek, football (with rules) verbal or initiative games.

In general only one classification should be made in each half-minute but since fantasy and teacher-controlled take precedence over others, the nature of the fantasy activity may be indicated in brackets, e.g., constructive (if building a fort) or physical (if a monster chasing game). Similar for teacher-controlled.

APPENDIX C: RESULTS OF THE BEST FRIEND SELECTION PROCESS

		ASSOCIATION		SOCIAL ASSOCIATION		INTERVIEW CHOICE		OVERALL	
ROY	1	STUART	3	STUART	3	STUART	3	STUART	9
	2	WILL	2	WILL	2	ALEX.	2	WILL	4
	3	ANGUS	1	ANGUS	1	SANDY	1	ANG/ALEX	2
STUART	1	ROY	3	ROY	3	ROY	3	ROY	9
	2	SANDY	2	SANDY	2	ANGUS	2	SANDY	4
	3	ALEX.	1	ALEX.	1	WILL	1	ANG/ALEX	2
JEMIMA	1	CAMILLA	3	CAMILLA	3	CAMILLA	3	CAMILLA	9
	2	MALCOLM	2	MALCOLM	2	SANDY	2	MALCOLM	4
	3	ANDREW	1	ANGUS	1	-	-	SANDY	2
WILL	1	ROY	3	ROY	3	SANDY	3	ROY	7
	2	LOUISA	2	LOUISA	2	MANDY	2	LOUISA	4
	3	SANDY	1	GRETA	1	ROY	1	SANDY	4
JOANNE	1	EMILY	3	EMILY	3	HEATHER	3	HEATHER	7
	2	HEATHER	2	HEATHER	2	SANDY	2	EMILY	6
	3	ANGUS	1	ANGUS	1	CAMILLA	1	ANG/SAN	2
DONALD	1	GRETA	3	EDWARD	3	SANDY	3	SANDY	5
	2	LOUISA	2	SANDY	2	STUART	2	EDWARD	4
	3	DAVID	1	JOANNE	1	EDWARD	1	GRETA	3
MANDY	1	WILL	3	ROSALIND	3	WILL	3	WILL	8
	2	ROSALIND	2	WILL	2	-	-	ROSALIND	5
	3	JOANNE	1	DAVID	1	-	-	DAVID/JO	1
EDWARD	1	DONALD	3	DONALD	3	-	-	DONALD	6
	2	SANDY	2	ANDREW	2	-	-	SANDY	3
	3	GRETA	1	SANDY	1	-	-	ANDREW	2
HEATHER	1	EMILY	3	EMILY	3	DAVID	3	EMILY	6
	2	JOE	2	ROSALIND	2	LOUISA	2	ROSALIND	3
	3	ROSALIND	1	JOANNE	1	-	-	DAVID	3
SANDY	1	ALEX.	3	EDWARD	3	ANGUS	3	ALEX.	5
	2	EDWARD	2	ALEX.	2	STUART	2	EDWARD	5
	3	WILL	1	CHRIS	1	WILL	1	ANGUS	3
DAVID	1	ROWENA	3	ROWENA	3	SANDY	3	ROWENA	6
	2	SANDY	2	JOE	2	ALEX.	2	SANDY	5
	3	DONALD	1	DONALD	1	ROSALIND	1	J/DON/AL	2
GRETA	1	HEATHER	3	EDWARD	3	DONALD	3	EDWARD	3
	2	ROSALIND	2	WILL	2	IAN	2	HEATHER	3
	3	KATHLEEN	1	ANGUS	1	SANDY	1	DONALD	3
ANDREW	1	MALCOLM	3	ROY	3	MALCOLM	3	MALCOLM	6
	2	STUART	2	STUART	2	DAVID	2	STUART	4
	3	GRETA	1	ANGUS	1	GRETA	1	ROY	3
MALCOLM	1	ANDREW	3	ANDREW	3	ANDREW	3	ANDREW	9
	2	EDWARD	2	EDWARD	2	-	-	EDWARD	4
	3	DAVID	1	JOANNE	1	-	-	JO/DAV	2
	RANK	NAME	PTS	NAME	PTS	NAME	PTS	NAME	PTS

APPENDIX D (1-13): CASE STUDY RESULTS GROUPED

TABLE 1: (1) PATTERN OF ASSOCIATION: RESULTS

SCORES OF SAMPLE MEMBERS ON THREE MEASURES: FREQUENCY OF ASSOCIATION WITH BEST FRIEND, DISTINCTNESS OF MOST FREQUENT COMPANION AND RANGE OF COMPANIONS

	FREQ.ASSOC.BF		DISTINCT.MFC		RANGE COMP	
	%	rank	%	rank	No.	rank
ROY	66.7	1	29.3	6	5	9½
STUART	30.8	4	29.9	5	8	5
JEMIMA	28.3	6	55.8	1	3	12
WILL	31.7	3	25.1	7	11	1½
JOANNE	21.7	9	21.5	8	7	6½
DONALD	12.9	13	5.0	14	9	3½
MANDY	26.7	8	10.7	11	3	12
EDWARD	24.2	10	53.5	2	2	14
HEATHER	27.9	7	46.2	3	6	8
SANDY	32.9	2	7.6	13	11	1½
DAVID	21.3	11	8.8	12	9	3½
GRETA	12.5	14	12.5	10	7	6½
ANDREW	14.6	12	14.4	9	5	9½
MALCOLM	30.0	5	41.7	4	3	12

TABLE 2: (3) SOCIAL INVOLVEMENT: OVERALL PATTERN

		SOL	MEL	PAR	SOC 1	SOC 2	SOC 3	TEACH
ROY	%	2.1	2.9	12.9	31.65	49.2	0	1.25
	RANK	14	12	14	2	1	-	11½
STUART	%	15.4	13.3	31.7	26.3	12.1	0.8	0.4
	RANK	9	6	12	3	3	-	14
JEMIMA	%	38.75	13.75	22.9	8.3	11.7	0	4.6
	RANK	2	5	13	13½	4	-	4
WILL	%	3.75	11.65	62.1	12.1	8.3	0	2.1
	RANK	13	8	1	9	6	-	10
JOANNE	%	20.0	1.7	39.15	18.75	14.15	0	6.25
	RANK	7	13	7	5½	2	-	2
DONALD	%	25.8	7.9	48.75	14.2	0.4	0	2.9
	RANK	4	10	3	8	13	-	7½
MANDY	%	15.0	25.85	42.5	8.75	2.1	0	5.8
	RANK	10	1	6	11	11.	-	3
EDWARD	%	17.5	20.8	32.5	17.9	4.2	0	7.1
	RANK	8	2	11	7	9½	-	1
HEATHER	%	23.75	0.85	45.85	18.75	7.9	0	2.9
	RANK	5	14	5	5½	7	-	7½
SANDY	%	8.7	10.0	37.9	34.6	4.6	0	4.2
	RANK	12	9	9½	1	8	-	5½
DAVID	%	9.6	7.5	50.85	20.4	10.85	0	0.8
	RANK	11	11	2	4	5	-	13
GRETA	%	20.4	17.9	46.7	8.3	4.2	0	2.5
	RANK	6	3½	4	13½	9½	-	9
ANDREW	%	29.2	17.9	38.3	8.75	1.65	0	4.2
	RANK	3	3½	8	11	12	-	5½
MALCOLM	%	39.2	12.9	37.9	8.75	0	0	1.25
	RANK	1	7	9½	11	14	-	11½

TABLE 3: (3) SOCIAL INVOLVEMENT: BEST FRIEND vs. OTHERS

		PAR	SOC 1	SOC 2	SOC 3
ROY	BF	9.4	25.6	65.0	0
	OTHERS	24.6	53.8	21.6	0
STUART	BF	17.8	42.5	37.0	2.7
	OTHERS	64.9	33.0	2.1	0
JEMIMA	BF	46.4	20.3	33.3	0
	OTHERS	67.7	17.6	14.7	0
WILL	BF	69.7	19.8	10.5	0
	OTHERS	78.7	11.5	9.8	0
JOANNE	BF	56.8	2.3	40.9	0
	OTHERS	53.5	34.1	12.4	0
DONALD	BF	66.7	33.3	0	0
	OTHERS	79.5	19.7	0.8	0
MANDY	BF	83.3	15.0	1.7	0
	OTHERS	76.5	17.6	5.9	0
EDWARD	BF	51.7	48.3	0	0
	OTHERS	65.8	20.5	13.7	0
HEATHER	BF	51.5	36.4	12.1	0
	OTHERS	70.4	19.4	10.2	0
SANDY	BF	48.1	39.2	12.7	0
	OTHERS	50.0	49.1	0.9	0
DAVID	BF	78.7	21.3	0	0
	OTHERS	56.7	26.0	17.3	0
GRETA	BF	48.6	25.7	25.7	0
	OTHERS	88.8	10.3	0.9	0
ANDREW	BF	97.1	2.9	0	0
	OTHERS	71.1	24.1	4.8	0
MALCOLM	BF	79.2	20.8	0	0
	OTHERS	85.0	15.0	0	0

TABLE 4: (4) SOCIAL ACTS: CATEGORY SYSTEM ONE

ABSOLUTE AMOUNTS

	OVERALL				BEST FRIEND			
	GIVEN		RECEIVED		GIVEN		RECEIVED	
	No.	RANK	No.	RANK	No.	RANK	No.	RAN
ROY	342	1	206	1	192	1	120	1
STUART	176	2	152	2	81	2	79	2
JEMIMA	81	11	82	10	43	4	43	3
WILL	80	12	86	9	19	7	17	7
JOANNE	156	5	103	5½	26	6	28	5
DONALD	116	8	88	8	17	8	9	11½
MANDY	99	9	66	12	13	10	13	9
EDWARD	142	6	94	7	42	5	26	6
HEATHER	126	7	103	5½	45	3	37	4
SANDY	167	4	123	3	16	9	10	10
DAVID	174	3	120	4	10	11½	9	11½
GRETA	98	10	72	11	6	13	5	13
ANDREW	72	13	42	14	2	14	1	14
MALCOLM	50	14	61	13	10	11½	15	8

TABLE 5: (4) SOCIAL ACTS CATEGORY SYSTEM ONE
OVERALL DISTRIBUTION OF SOCIAL ACTS ACROSS THE FOUR MAJOR CLASSES OF CATEGORY

		ACTS GIVEN				ACTS RECEIVED			
		FR	ORG	CON	ANN	FR	ORG	CON	ANN
ROY	%	65.2	21.05	13.16	0.58	83.98	1.94	14.08	0
	RANK	12	1	8	6	1	13	9	10½
STUART	%	86.36	2.84	10.8	0	82.89	7.24	9.87	0
	RANK	2	13	10	11	2	6	13	10½
JEMIMA	%	76.54	4.94	18.52	0	81.71	6.1	12.2	0
	RANK	7	9	4	11	4	9	10	10½
WILL	%	67.5	15.0	17.5	0	73.26	4.65	22.09	0
	RANK	10	3	5	11	9	12	6	10½
JOANNE	%	82.05	11.54	6.41	0	77.67	13.59	8.74	0
	RANK	6	6	14	11	5	1	14	10½
DONALD	%	51.72	19.83	23.28	5.17	53.41	10.23	34.09	2.27
	RANK	14	2	2	1	14	3	1	4
MANDY	%	53.54	12.12	32.32	2.02	65.15	7.58	22.73	4.55
	RANK	13	5	1	4	12	5	4	2
EDWARD	%	89.44	2.82	7.75	0	74.47	10.64	14.89	0
	RANK	1	14	13	11	8	2	8	10½
HEATHER	%	74.6	7.14	14.29	3.97	72.82	4.85	22.33	0
	RANK	8	7	7	3	10	11	5	10½
SANDY	%	85.63	4.19	9.58	0.6	76.42	6.5	16.26	0.81
	RANK	3	10	12	5	7	8	7	6
DAVID	%	85.06	3.45	10.92	0.57	82.5	5.0	11.67	0.83
	RANK	4	12	9	7	3	10	11	5
GRETA	%	67.35	12.24	16.33	4.08	66.67	1.39	25.0	6.94
	RANK	11	4	6	2	11	14	3	1
ANDREW	%	83.33	6.94	9.72	0	61.9	7.14	28.57	2.38
	RANK	5	8	11	11	13	7	2	3
MALCOLM	%	74.0	4.0	22.0	0	77.05	9.84	11.48	1.64
	RANK	9	11	3	11	6	4	12	5

TABLE 6: (4) SOCIAL ACTS CATEGORY SYSTEM ONE:
DISTRIBUTION OF SOCIAL ACTS ACROSS THE FOUR MAJOR CLASSES OF CATEGORIES: BEST FRIEND COMPARED TO OTHERS

		ACTS GIVEN				ACTS RECEIVED			
		FA	ORG	CON	ANN	FR	ORG	CON	ANN
ROY	BF	66.67	21.35	11.46	0.52	85.83	1.67	12.5	0
	OTHERS	63.33	20.67	15.33	0.67	81.40	2.33	16.28	0
STUART	BF	85.19	3.70	11.11	0	82.29	11.39	6.33	0
	OTHERS	87.37	2.11	10.53	0	83.56	2.74	13.70	0
JEMIMA	BF	86.05	2.33	11.63	0	83.72	6.98	9.3	0
	OTHERS	65.79	7.89	26.32	0	79.49	5.13	15.38	0
WILL	BF	100.0	0	0	0	70.59	17.65	11.76	0
	OTHERS	57.38	19.67	22.95	0	73.91	1.45	24.64	0
JOANNE	BF	92.31	3.85	3.85	0	67.86	28.57	3.57	0
	OTHERS	80.0	13.08	6.92	0	81.33	8.0	10.67	0
DONALD	BF	100.0	0	0	0	66.67	0	33.33	0
	OTHERS	43.43	23.23	27.27	6.06	51.9	11.39	34.18	2.53
MANDY	BF	69.23	0	23.08	7.69	84.62	0	15.38	0
	OTHERS	51.16	13.95	33.72	1.16	60.38	9.43	24.53	5.66
EDWARD	BF	92.86	0	7.14	0	92.31	7.69	0	0
	OTHERS	88.0	4.0	8.0	0	67.65	11.76	20.59	0
HEATHER	BF	80.0	6.67	13.33	0	75.68	5.41	18.92	0
	OTHERS	71.6	7.41	14.81	6.17	71.21	4.55	24.24	0
SANDY	BF	93.75	0	6.25	0	80.0	10.0	10.0	0
	OTHERS	84.8	4.65	9.9	0.65	76.10	6.20	16.80	0.90
DAVID	BF	100.0	0	0	0	88.90	0	11.10	0
	OTHERS	84.15	3.65	11.60	0.60	82.0	5.4	11.70	0.90
GRETA	BF	100.0	0	0	0	80.0	0	20.0	0
	OTHERS	65.22	13.04	17.39	4.35	65.67	1.49	25.37	7.46
ANDREW	BF	50.0	50.0	0	0	0	0	100.0	0
	OTHERS	84.29	5.71	10.0	0	63.41	7.32	26.83	2.44
MALCOLM	BF	70.0	0	30.0	0	80.0	20.0	0	0
	OTHERS	75.0	5.0	20.0	0	76.09	6.52	15.22	2.17

TABLE 7: (4) SOCIAL ACTS CATEGORY SYSTEM ONE
OVERALL PROPORTION OF SOCIAL ACTS ASSIGNED TO THE SUBGROUPS ADAPTIVE AND COUNTERADAPTIVE AND TO THE CATEGORY FRIENDLY ATTENTION

	ADAPTIVE				COUNTERADAPTIVE					
	GIVEN		RECEIVED		GIVEN		RECEIVED		FR.ATT.	
	%	RANK	%	RANK	%	RANK	%	RANK	%	RANK
ROY	29.8	1	18.0	6½	7.9	12	6.8	9	3.22	8
STUART	13.1	9	21.1	1	8.0	10½	5.9	10	4.55	5
JEMIMA	22.2	2	18.3	5	9.9	5	4.9	13½	0	13
WILL	15.0	7½	20.9	2	21.2	2	12.8	6	3.75	7
JOANNE	17.3	5½	19.4	4	5.1	13	5.8	11	7.69	2
DONALD	6.0	12½	13.6	12	14.7	4	27.3	1	5.17	4
MANDY	10.1	10	16.7	8½	31.3	1	21.2	3	7.07	3
EDWARD	19.0	4	16.0	11	2.8	14	9.6	8	8.45	1
HEATHER	20.6	3	20.4	3	8.7	8	18.4	4	0	13
SANDY	15.0	7½	16.3	10	9.0	7	11.4	7	4.19	6
DAVID	8.6	11	10.8	13	9.8	6	5.0	12	2.87	9
GRETA	17.3	5½	18.0	6½	15.3	3	16.7	5	1.02	11
ANDREW	2.8	14	16.7	8½	8.3	9	23.8	2	2.78	10
MALCOLM	6.0	12½	6.6	14	8.0	10½	4.9	13½	0	13

TABLE 8: (4) SOCIAL ACTS CATEGORY SYSTEM ONE
PROPORTION OF SOCIAL ACTS ASSIGNED TO THE SUBGROUPS ADAPTIVE AND COUNTERADAPTIVE: BESTFRIEND COMPARED TO OTHERS

	ADPV.GV.		ADPV.RV.		CADPV.GV.		CADPV.RV	
	BF	OTHERS	BF	OTHERS	BF	OTHERS	BF	OTHERS
ROY	30.7	28.7	20.8	14.0	5.2	11.3	5.0	9.3
STUART	17.3	9.5	34.2	6.8	8.6	7.4	5.1	6.8
JEMIMA	16.3	28.9	23.3	12.8	9.3	10.5	2.3	7.7
WILL	5.3	18.0	47.1	14.5	0	27.9	0	15.9
JOANNE	7.7	19.2	21.4	18.7	3.8	5.4	0	8.0
DONALD	0	7.1	0	15.2	0	17.2	33.3	26.6
MANDY	7.7	10.5	7.7	18.9	7.7	34.9	15.4	22.6
EDWARD	31.0	14.0	15.4	16.2	2.4	3.0	0	13.2
HEATHER	15.6	23.5	32.4	13.6	8.9	8.6	13.5	21.2
SANDY	12.5	15.2	10.0	16.8	6.25	9.3	10.0	11.5
DAVID	0	9.1	0	11.0	0	10.4	0	5.4
GRETA	33.3	16.3	20.0	17.9	0	16.3	0	17.9
ANDREW	0	2.9	0	17.1	0	8.6	100.0	22.0
MALCOLM	0	7.5	0	8.7	20.0	5.0	0	6.5

TABLE 9: (5) SOCIAL ACTS CATEGORY SYSTEM TWO:
ABSOLUTE NUMBER OF CATEGORY SYSTEM TWO SOCIAL ACTS OBSERVED
OVERALL AND TO/FROM BEST FRIEND

	OVERALL				WITH BEST FRIEND			
	GIVEN		RECEIVED		GIVEN		RECEIVED	
	No.	RANK	No.	RANK	No.	RANK	No.	RANK
ROY	277	1	193	1	167	1	115	1
STUART	126	3	117	2	66	2	67	2
JEMIMA	62	9	62	8½	37	5	37	3
WILL	60	10	62	8½	20	7	14	7
JOANNE	115	4½	90	4	21	6	26	6
DONALD	63	8	44	10½	15	8	8	9½
MANDY	44	12	44	10½	9	1	10	8
EDWARD	100	6	79	6	39	4	29	5
HEATHER	80	7	70	7	41	3	31	4
SANDY	115	4½	82	5	10	9½	6	12
DAVID	138	2	103	3	10	9½	7	11
GRETA	54	11	39	13	3	13	4	13
ANDREW	42	13	30	14	1	14	0	14
MALCOLM	31	14	41	12	7	12	8	9½

TABLE 10: (5) CATEGORY SYSTEM TWO

OVERALL DISTRIBUTION OF SOCIAL ACTS ACROSS THE FOUR CATEGORIES

		ACTS GIVEN				ACTS RECEIVED			
		I	II	III	IV	I	II	III	IV
ROY	%	2.2	5.8	18.8	73.2	4.1	6.75	49.75	39.4
	RANK	10	14	14	1	13	13	1	3
STUART	%	0.8	15.1	59.5	24.6	3.4	11.1	48.75	36.75
	RANK	14	11	1	10	14	10½	3	4
JEMIMA	%	1.6	24.2	40.3	33.9	12.9	21.0	30.6	35.5
	RANK	13	9	6	6	4	7	12	5
WILL	%	21.7	31.65	31.65	15.0	16.1	24.2	27.4	32.3
	RANK	2	4	8	12	2	6	13	8
JOANNE	%	3.5	10.4	38.3	47.8	4.45	11.1	33.35	51.1
	RANK	9	13	7	2	12	10½	9½	1
DONALD	%	9.5	28.6	30.2	31.7	6.8	27.3	36.4	29.5
	RANK	5	7	9	8	9	5	8	10
MANDY	%	9.1	29.55	29.55	31.8	11.4	29.55	38.6	20.45
	RANK	6	6	11	7	5	4	6	12
EDWARD	%	2.0	35.0	28.0	35.0	10.1	16.5	38.0	35.4
	RANK	11	3	12	5	6	9	7	6
HEATHER	%	3.75	17.5	42.5	36.25	5.7	18.6	45.7	30.0
	RANK	8	10	5	3	11	8	4	9
SANDY	%	1.8	26.4	46.4	25.4	6.1	11.0	48.8	34.1
	RANK	12	8	4	9	10	12	2	7
DAVID	%	5.8	11.6	47.1	35.5	8.75	5.85	39.8	45.6
	RANK	7	12	3	4	7	14	5	2
GRETA	%	11.1	40.8	29.6	18.5	17.9	33.35	33.35	15.4
	RANK	4	2	10	11	1	3	9½	14
ANDREW	%	14.3	31.0	47.6	7.1	13.3	36.7	23.3	26.7
	RANK	3	5	2	13	3	2	14	11
MALCOLM	%	22.6	45.2	25.8	6.4	7.3	41.5	31.7	19.5
	RANK	1	1	13	14	8	1	11	13

TABLE 11: (5) SOCIAL ACTS CATEGORY SYSTEM TWO

DISTRIBUTION OF SOCIAL ACTS ACROSS THE FOUR CATEGORIES:

BEST FRIEND vs. OTHERS

		ACTS GIVEN				ACTS RECEIVED			
		I	II	III	IV	I	II	III	IV
ROY	BF	0.6	4.8	17.4	77.2	2.6	0.9	53.0	43.5
	OTHERS	4.5	7,3	20.9	67.3	6.4	15.4	44.9	33.3
STUART	BF	0	4.55	71.2	24.25	1.5	8.95	35.8	53.75
	OTHERS	5.5	10.9	47.65	35.95	6.0	14.0	66.0	14.0
JEMIMA	BF	0	10.8	48.65	40.55	8.1	8.1	32.4	51.4
	OTHERS	4.0	44.0	28.0	24.0	20.0	40.0	28.0	12.0
WILL	BF	20.0	25.0	50.0	5.0	0	21.4	14.3	64.3
	OTHERS	22.5	35.0	22.5	20.0	20.85	25.0	31.25	22.9
JOANNE	BF	4.8	9.5	57.1	28.6	0	7.7	7.7	84.6
	OTHERS	3.2	10.6	34.0	52.2	6.25	12.5	43.75	37.5
DONALD	BF	13.3	26.7	40.0	20.0	0	25.0	25.0	50.0
	OTHERS	8.3	29.2	27.1	35.4	8.3	27.8	38.9	25.0
MANDY	BF	0	22.2	66.7	11.1	0	30.0	50.0	20.0
	OTHERS	11.4	31.4	20.0	37.2	14.7	29.4	35.3	20.6
EDWARD	BF	0	20.5	35.9	43.6	6.9	17.2	55.2	20.7
	OTHERS	3.3	44.25	22.95	29.5	12.0	16.0	28.0	44.0
HEATHER	BF	7.3	7.3	51.2	34.2	6.45	16.1	45.2	32.25
	OTHERS	0	28.2	33.3	38.5	5.1	20.5	46.2	28.2
SANDY	BF	0	10.0	90.0	0	0	0	83.3	16.7
	OTHERS	2.85	26.7	42.85	27.6	6.6	11.85	46.05	35.5
DAVID	BF	10.0	20.0	40.0	30.0	14.3	0	28.6	57.1
	OTHERS	5.5	10.9	47.65	35.95	8.3	6.3	40.6	44.8
GRETA	BF	0	33.3	0	66.7	0	0	100	0
	OTHERS	11.75	41.2	31.35	15.7	19.4	36.1	27.8	16.7
ANDREW	BF	0	100	0	0	–	–	–	–
	OTHERS	14.6	29.3	48.8	7.3	13.3	36.7	23.3	26.7
MALCOLM	BF	0	42.9	57.1	0	12.5	37.5	37.5	12.5
	OTHERS	29.2	45.8	16.7	8.3	6.1	42.4	30.3	21.2

TABLE 12: (6) CONTROLLING ACTS:
ABSOLUTE NUMBER OF CONTROLLING ACTS GIVEN AND RECEIVED,
OVERALL AND WITH BESTFRIEND

		OVERALL		BESTFRIEND	
		GV	RV	GV	RV
ROY	No.	142	27	95	16
	RANK	1	3	1	3
STUART	No.	16	33	7	24
	RANK	9	1	$4\frac{1}{2}$	1
JEMIMA	No.	18	12	10	10
	RANK	7	7	3	4
WILL	No.	7	8	0	5
	RANK	12	10	$11\frac{1}{2}$	6
JOANNE	No.	38	31	4	21
	RANK	2	2	6	2
DONALD	No.	24	8	0	1
	RANK	5	10	$11\frac{1}{2}$	9
MANDY	No.	10	5	0	0
	RANK	10	13	$11\frac{1}{2}$	12
EDWARD	No.	17	15	7	6
	RANK	8	4	$4\frac{1}{2}$	5
HEATHER	No.	34	11	15	2
	RANK	3	8	2	$7\frac{1}{2}$
SANDY	No.	22	14	0	0
	RANK	6	$5\frac{1}{2}$	$11\frac{1}{2}$	12
DAVID	No.	25	14	1	0
	RANK	4	$5\frac{1}{2}$	8	12
GRETA	No.	9	4	2	0
	RANK	11	14	7	12
ANDREW	No.	3	8	0	0
	RANK	13	10	$11\frac{1}{2}$	12
MALCOLM	No.	1	6	0	2
	RANK	14	12	$11\frac{1}{2}$	$7\frac{1}{2}$

TABLE 13: (6) CONTROLLING ACTS

PROPORTIONS OF ACTS IN ADAPTIVE CONTROL AND DOMINATING CONTROL CATEGORIES, OVERALL AND BESTFRIEND vs. OTHERS

		OVERALL					BF vs. OTHERS			
		ACTS GIVEN		ACTS RECEIVED			ACTS GIVEN		ACTS RECEIVED	
		AC	DC	AC	DC		AC	DC	AC	DC
ROY	%	73.9	26.1	88.9	11.1	BF	82.1	17.9	87.5	12.5
	RANK	4	–	6	–	OTHERS	57.4	42.6	90.9	9.1
STUART	%	56.3	43.7	69.7	30.3	BF	85.7	14.3	83.3	16.7
	RANK	9	–	12	–	OTHERS	33.3	66.7	33.3	66.7
JEMIMA	%	61.1	38.9	75	25	BF	60	40	80	20
	RANK	6	–	10	–	OTHERS	62.5	37.5	50	50
WILL	%	28.6	71.4	75	25	BF	–	–	60	40
	RANK	11	–	10	–	OTHERS	28.6	71.4	100	0
JOANNE	%	89.5	10.5	80.6	19.4	BF	75	25	76.2	23.8
	RANK	2	–	7	–	OTHERS	91.2	8.8	90	10
DONALD	%	25.0	75.0	75	25	BF	–	–	100	0
	RANK	12	–	10	–	OTHERS	25	75	71.4	28.6
MANDY	%	60	40	100	0	BF	–	–	–	–
	RANK	7½	–	2	–	OTHERS	60	40	100	0
EDWARD	%	94.1	5.9	93.3	6.7	BF	100	0	83.3	16.7
	RANK	1	–	4	–	OTHERS	90	10	100	0
HEATHER	%	64.7	35.3	90.9	9.1	BF	53.3	46.7	100	0
	RANK	5	–	5	–	OTHERS	73.7	26.3	88.9	11.1
SANDY	%	86.4	13.6	100	0	BF	–	–	–	–
	RANK	3	–	2	–	OTHERS	86.4	13.6	100	0
DAVID	%	60	40	78.6	21.4	BF	100	0	–	–
	RANK	7½	–	8	–	OTHERS	58.3	41.7	78.6	21.4
GRETA	%	33.3	66.7	100	0	BF	100	0	–	–
	RANK	10	–	2	–	OTHERS	14.3	85.7	100	0
ANDREW	%	0	100	0	100	BF	–	–	–	–
	RANK	13½	–	14	–	OTHERS	0	100	0	100
MALCOLM	%	0	100	33.3	66.7	BF	–	–	0	100
	RANK	13½	–	13	–	OTHERS	0	100	50	50

APPENDIX E: MATRIX OF STATISTICAL RESULTS FROM CASE STUDIES

	PAR/SOC1+2	PAR+S1/S2	PAR/S1/S2	F/ORG+C+ANNGV	F+ORG/C+ANNGV	F/ORG/C+ANNGV	F/ORG+C+ANNRV	F+ORG/C+ANNRV	F/ORG/C+ANNRV	ADPV GV	ADPV RV	CADPV GV	CADPV RV	LEAD/FOLLOWGV	LEAD/FOLLOWRV	AC.DC GV	AC.DC RV
ROY	.01	.001	.001	ns	ns	ns	ns	ns	ns	ns	ns	.05	ns	ns	.01	ns	
STUART	.001	.001	.001	ns	ns	ns	ns	ns	ns	ns	.001	ns	ns	.001	p=.055	p=.010	
JEMIMA	.025	.05	.05	.05	ns	N/A	ns	ns	ns	ns	ns	ns	ns	p=.087	ns	ns	
WILL	ns	ns	ns	.01	p=.015	N/A	ns	ns	ns	.01	p=.005	ns	p=.04	.01	N/A	ns	
JOANNE	ns	.001	.001	ns	ns	N/A	.05	ns	N/A	ns	ns	ns	.05	.001	ns	ns	
DONALD	.05	N/A	N/A	.001	p=.002	N/A	ns	ns	N/A	ns	ns	p=.05	ns	ns	N/A	N/A	
MANDY	ns	ns	ns	ns	ns	N/A	ns	ns	N/A	ns	ns	p=.012	ns	.05	ns	N/A	N/A
EDWARD	.05	.002	.001	ns	ns	N/A	.025	.05	N/A	.025	ns	ns	p=.046	ns	.025	ns	ns
HEATHER	.01	ns	.025	ns	ns	N/A	ns	ns	N/A	ns	.025	ns	ns	ns	ns	ns	
SANDY	ns	.001	.01	ns	ns	N/A	ns	ns	N/A	ns	ns	ns	ns	p=.016	ns	N/A	N/A
DAVID	.01	R p=.0005	.01	ns	ns	N/A	ns	ns	N/A	ns	ns	ns	ns	ns	N/A	N/A	
GRETA	.01	.001	N/A	ns	ns	N/A	ns	ns	N/A	ns	ns	ns	ns	ns	ns	N/A	
ANDREW	.01	R N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ns	N/A	ns	N/A	N/A	N/A	N/A	
MALCOLM	ns	ns	N/A	ns	ns	N/A	ns	ns	N/A	ns	ns	ns	ns	ns	N/A	ns	

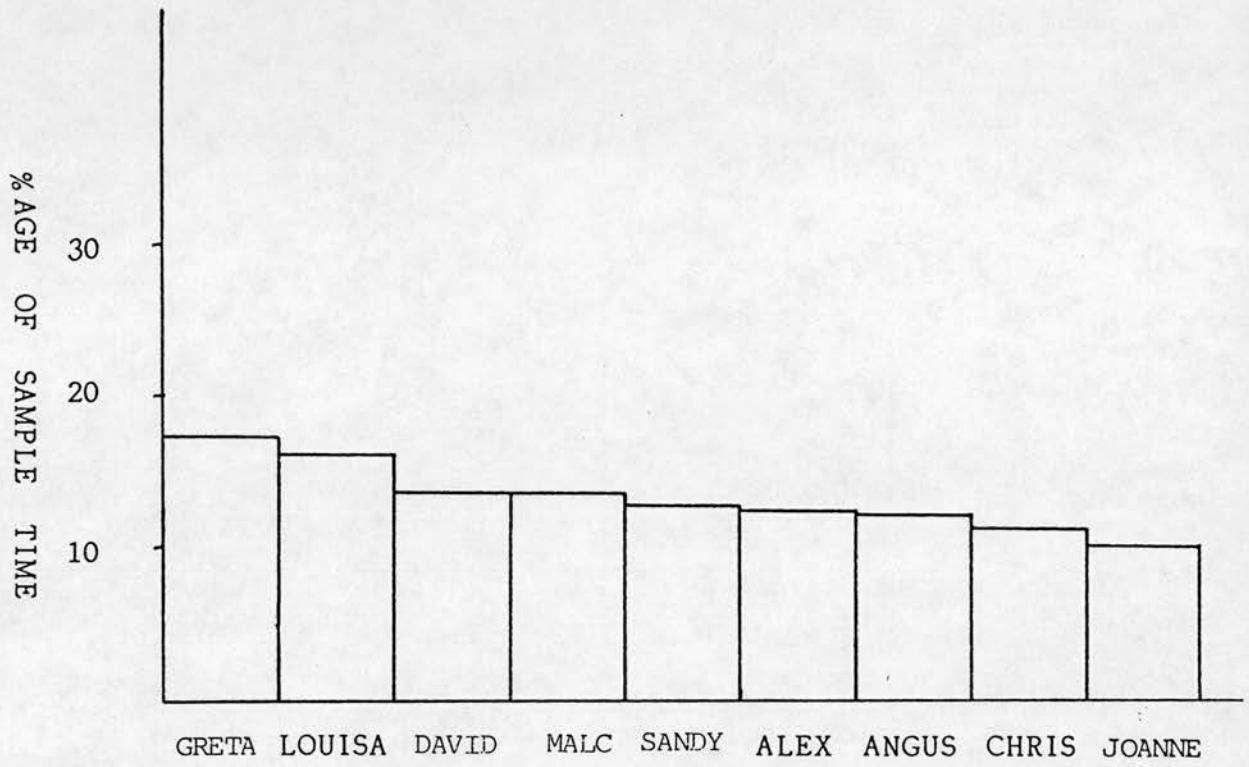
R indicates result in reverse of expected direction

APPENDIX F: SAMPLE CASE STUDY

CASE STUDY No.6: DONALD (4:3)

(1) PATTERN OF ASSOCIATION

Donald shows a wide range of companions none of whom are strong in terms of frequency of association.



His association pattern is quite extreme in some respects. His most frequent companion in absolute terms is very weak - he gains rank 13 for the percentage of sample time spent in the company of his most frequent companion. He gains the lowest possible rank (rank 14), for distinctness of the most frequent companion from the 2nd most frequent companion. His range of friends however is wide - 9 above the criterion (rank $3\frac{1}{2}$), with only 7.1% between the first and ninth of these companions. So overall Donald shows a large range of weak companions who are nearly indistinguishable from each other. The evidence does not indicate the existence of a 'special' close friendship, but does show that Donald has a wide ranging and relatively unselective pattern of social contacts.

(2) INTERVIEW DATA

In interview Donald chose Sandy as his best friend, (5th most frequent companion on his pattern of association). He also chose Stuart as his second best friend and Edward as his third. Sandy is a very popular child and it might be that Donald 's choice reflects wishful thinking on his part, in the absence of an obvious choice. However the system for selecting overall best friend shows that this is not the case. This system gives equal weight to the position of an individual on 3 measures - frequency of association, frequency of association with social involvement (social association) and the Subjects nominations in interview.

	Association	Pts.	Social Association	Pts.	Interview Choice	Pts.
1st	Greta	3	Edward	3	Sandy	3
2nd	Louisa	2	Sandy	2	Stuart	2
3rd	David	1	Joanne	1	Edward	1

Donald shows a fairly low level of consistency across these measures, but overall Sandy wins with 5 points, thus showing that Donald's stated choice is not without basis.

It should be noted also however, that Edward comes a good second with 4 points despite not even appearing on Donald's pattern of association. His absence there may be due to sampling error, particularly likely to affect results at these low levels of absolute frequency of association (it is relevant here that Donald does appear in Edward's association pattern). Edward's presence as runner up in the overall best friend assessment does fit in well with the description of the relationship between Donald and Edward as described in Edward's individual profile - there it was shown that Edward's investment in that relationship is greater than Donald's, and that within it, it is Edward that tends to set the pace. Edward creates a relatively good level of social interaction within this friendship (he looks for it also elsewhere), but Donald simply follows on without providing any impetus.

(3) SOCIAL INVOLVEMENT

(i) Overall:

CATEGORY	SOLITARY	MELEE	PARALLEL	S1	S2	S3	TEACHER
%	25.8	7.9	48.8	14.2	0.4	0	2.9
RANK	4	10	3	8	13	-	7½

Donald's overall pattern shows a low degree of participation in socially involved activities. His high rankings on solitary and parallel show a tendency toward activities involving little social involvement as does his low ranking on social 2. It is not clear from this analysis whether his high degree of solitariness is due to rejection or simply a lack of interest in being in company all the time but it seems that he is not over-anxious when alone as he only shows average involvement with Teacher.

Overall, parallel is clearly Donald's predominant level of involvement in play. Co-operative social activity is markedly rare although he does get involved in a moderate amount of social interaction at the simplest level.

(ii) Best Friend vs. Others:

	Par.	S1	S2	S3
with F	66.7	33.3	0	0
others	79.5	19.7	0.8	0

Donald does show more social 1 and less parallel activity with his best friend than he does with others, but he does not gain in social 2 (co-operative) social involvement when with his best friend. The gain in social 1 is statistically significant (PAR/SOC1+2, sig. at .05 level). Sandy, Donald's best friend, is the leading exponent of social one involvement in the sample so it seems likely that Donald is tending to join in at this level when playing with him, often in the context of loosely coordinated fantasy play involving a lot of physical activity.

(iii) Summary:

It is clear that Donald tends towards parallel rather than

social involvement and also that he his quite often on his own. When alone he does not appear to be over anxious. With Sandy, his best friend, there seems to be a slightly enhanced level of social involvment but Donald's play with Sandy is still predominantly in parallel.

(4) SOCIAL ACTS: CATEGORY SYSTEM ONE

(i) Absolute Amount:

	ALL PEERS		BEST FRIEND	
	GV	RV	GV	RV
Abs No.	116	88	17	9
RANK	8	8	9	$11\frac{1}{2}$

Overall Donald gives and receives average amounts of social acts. In view of Donald's strong tendency toward less social types of play, this would seem to suggest that, although Donald still gives and receives an average number of social acts, these acts are not usually imbedded in ongoing sequences of co-ordinated interaction but rather tend to be isolated. In interaction with his best friend Donald gives a moderate number of social acts but actually receives relatively few. Thus it seems that Sandy is not enthusiastically reciprocating Donald's attention to him but rather that he is, if anything, less interested than Donald. There certainly does not seem to be a high level of social activity between them in terms of the amount of social acts exchanged.

(ii) Relative Proportion of Major Categories:

	ACTS GIVEN			
	FR	ORG	CON	ANN
%	51.7	19.8	23.3	5.2
RANK	14	2	2	1

Donald's pattern of acts given is very extreme indeed. He is exceptionally liable to produce annoying, contrary and organising acts, and relatively rarely produces acts that are

simply friendly. The high level of annoying acts (half the children were not seen to produce even one such act) indicates that Donald is not just being selfish, but that he is being actively provocative and hostile to others. This is clearly an important aspect of his behavioural style. In interview he professed to like everyone in the nursery but in play he is very aggressive without picking on anyone in particular.

It should also be noted that since Donald's involvement in cooperative or social interaction is small, his high level of organising acts seen here probably reflects a tendency to be selfish and bossy rather than constructive.

	ACTS RECEIVED			
	FR	ORG	CON	ANN
%	53.4	10.2	34.1	2.3
RANK	14	3	1	4

The pattern of acts received is marginally less extreme perhaps, but indicative of a strong negative reaction to Donald's behaviour. He receives a high proportion of contrary, organising and annoying acts and a low proportion of friendly acts. Of the high ranking categories the contrary is the most extreme, suggesting reactive hostility from others. It is interesting that annoying acts are also high - this suggests that Donald's own high level of producing annoying acts results in a backlash whereby others are deliberately provocative in return - grudges do appear to be harboured in the nursery to some extent. It should be noticed in this context that although dislikes are very rarely elicited from interviews of nursery age children, of the three cases in the sample who admitted to disliking someone, one mentioned Donald "cos he makes noises". This comment presumably refers to his aggressive and rowdy style of play. It should also be mentioned, however, that Greta said she liked Donald "cos him cuddle me". Donald therefore seems to have a demonstrative nature in more ways than simply being aggressive.

(iii) Best Friend vs. Others:

	ACTS GIVEN			
	FR	ORG	CON	ANN
with F	100.0	0	0	0
others	43.4	23.2	27.3	6.1

There is clearly a massive shift in Donald's behaviour towards Sandy, compared to his behaviour towards others. With Sandy, Donald seems to switch off his normal rowdy aggressiveness and he becomes friendly and acquiescent. This swing in his behaviour is highly significant (F/ORG+C+ANN GV, sig. at .001 level, F+ORG/C+ANN GV, p = .002).

	ACTS RECEIVED			
	FR	ORG	CON	ANN
with F	66.7	0	33.3	0
others	51.9	11.4	34.2	2.5

There are no significant differences, however, between the pattern of acts Donald receives from Sandy and that which he receives from others. So, despite Donald's less provocative style of behaviour towards Sandy, nonetheless Sandy still appears to react to Donald with non-friendly social acts quite often.

(iv) Adaptive Behaviour:

	OVERALL	RANK	with BF	others
GV	6.0%	12½	0%	7.1%
RV	13.6%	12	0%	15.2%

Overall Donald both gives and receives adaptive acts very rarely. Surprisingly adaptiveness seems even rarer within Donald's best friendship (although the differences are non-significant) - it is certainly not more frequent. So although Donald is less organising, contrary and annoying to Sandy, he is not however being more considerate to him, or acting with

his perspective in mind. In return he does not receive an enhanced level of consideration from his best friend.

(v) Counteradaptive behaviour:

	OVERALL	RANK	with BF	others
GV	14.7%	4	0%	17.2%
RV	27.3%	1	33.3%	26.6%

Overall Donald is clearly giving and receiving a high proportion of counteradaptive behaviour, but when in the company of Sandy he seems to suppress this tendency and thus gives a significantly lower proportion of such acts to his best friend, (CADPV GV, sig. at .05 level). This swing in his behaviour is not reciprocated by a less counteradaptive pattern of response from Sandy who therefore directs a high proportion of counteradaptive acts at Donald (as do all Donald's companions overall).

(vi) Attention Seeking:

Donald ranks highly in the group for attention seeking from peers, with 5.17% of his social acts being directly attention seeking (rank 4). So it seems that Donald's generally aggressive style of behaviour is associated with a strong desire to be noticed by his peers and gain their attention. An unsettled pattern of friendship might be indicated.

(vii) Summary:

The analysis of category system one social acts has produced a picture of Donald as generally an aggressive, rowdy and sometimes provocative child. In return he seems to receive a high degree of negative response from others. Donald is very rarely adaptive, even with his best friend, suggesting that he does not normally consider the perspective of others. The major behavioural alteration which he seems to make when interacting with his best friend is the suppression of overtly hostile and organising social acts, replacing them with unsophisticated friendly acts. Donald's preferential treatment of Sandy does not appear to be reciprocated and their relationship appears weak. Donald directs more social acts at Sandy than he receives and

the pattern of acts he does receive from Sandy includes a high level of contrary and counteradaptive acts with very little adaptiveness, in spite of Donald's especially non-aggressive behaviour within their interactions.

(5) SOCIAL ACTS CATEGORY SYSTEM TWO

(i) Absolute Amount:

	OVERALL		BEST FRIEND	
	GV	RV	GV	RV
No. OF SOCIAL ACTS	63	44	15	8
RANK	8	$10\frac{1}{2}$	8	$9\frac{1}{2}$

Both overall, and with his best friend, Donald seems to receive a relatively lower level of category system two acts than he gives, although he himself gives only an average level. It also seems that Donald receives a relatively low number of category two acts from his best friend, reflecting the situation in the analysis of category system 1.

(ii) Relative Proportions in Categories:

	ACTS GIVEN			
	I	II	III	IV
% AGE	9.5	28.6	30.2	31.7
RANK	5	7	9	8

GpI: minimal response, GpII: potential openers, GpIII: following, GpIV: leading.

This table reveals a fairly average state of affairs although Donald does show a moderate to high proportion of group I acts (minimal response). If anything, this pattern might be considered mildly non-sophisticated, but it is certainly not extremely so. Donald is producing a normal level of leading and following responses, indicating some participation in social play.

	ACTS RECEIVED			
	I	II	III	IV
% AGE	6.8	27.3	36.4	29.5
RANK	9	5	8	10

This pattern of acts received is also unspectacular, although leading (GpIV) is medium to low and potential openers (GpII) is medium to high. Considering the relatively small number of acts received, the distribution across categories shows no marked features. Both acts given and received are therefore similar in this respect.

(iii) Best Friend vs. Others:

	ACTS GIVEN			
	I	II	III	IV
with F	13.3	26.7	40.0	20.0
others	8.3	29.2	27.1	35.4

From the above table it appears that Donald maybe somewhat more passive with Sandy than he is with others, tending to follow more, lead less and produce more minimal responses, although the patterns are not significantly different

	ACTS RECEIVED			
	I	II	III	IV
with F	0	25.0	25.0	50.0
others	8.3	27.8	38.9	25.0

The pattern of distribution across categories of acts received seems to reflect a complementary aspect of this swing. From Sandy, Donald seems to be receiving rather more leading and less following, suggesting that Donald tends to be following leads from Sandy, although the absolute amount of interaction between them is in fact fairly small.

(iv) Summary:

Although Donald has shown no extreme characteristics in this analysis, the results suggest that Donald is being less

assertive than usual in the company of Sandy and they also show, (as did the category system one analysis) that Donald gives relatively more social acts to his best friend than he receives. Again the evidence seems to suggest that Donald is rather more keen on this relationship than Sandy.

(6) CONTROLLING ACTS

(i) Absolute Amount:

	CONTROLLING ACTS	
	GV	RV
No.	24	8
RANK	5	10

Donald shows a fairly strong pattern here - he is giving a medium to high number of controlling acts and receiving relatively few.

(ii) Adaptive/Dominating Control:

	GIVEN		RECEIVED	
	AC	DC	AC	DC
%age	25.0	75.0	75.0	25.0
RANK	12	-	10	-

Donald is clearly producing a strongly non-adaptive pattern of controlling acts with an extremely high level of dominating control. On the other hand he receives a generally adaptive type of control from others of nearer average proportions.

Almost no controlling acts were exchanged between Donald and Sandy (only 1 scored, from Sandy to Donald), so Donald is not trying to organise Sandy's behaviour nor vice-versa. Leading and following acts were seen to occur in their interactions but they are clearly not direct suggestions as to what course of action the other might take. Donald does plenty of controlling otherwise, so it seems that again he is suppressing his normal behaviour patterns when playing with

Sandy.

(iii) Summary:

Donald shows many controlling acts of a predominantly non-adaptive type, but this type of behaviour does not appear in his interactions with his best friend Sandy. Thus it seems that whilst Donald does have a generally aggressive style of interaction involving a fair amount of ordering around of others in an inconsiderate fashion, he alters his behaviour to a more passive an acquiescent style with Sandy. Donald receives relatively few controlling acts, probably because his behaviour is intimidating to many others, but those which he does receive show the usual predominance of adaptive control. He receives few controlling acts from his best friend.

(7) DUNCAN'S BEST FRIENDSHIP (SIMON)

Donald's best friendship is weak and poorly if at all reciprocated. Whilst there is clear evidence that Donald shows preferential friendliness towards Sandy, Sandy on the other hand seems unenthusiastic and no 'special' exclusive relationship seems to exist. All the impetus seems to be on Donald's side. Thus Donald is more involved at the Social one level (coordinated activity) with Sandy than he is with others in general, perhaps an advantage to him, but to Sandy this level of Social one activity represents no more than his normal level. In behavioural style Donald seems to repress his more usual aggressiveness and inconsiderate behaviour when with Sandy - he shows significantly less organising, contrary and annoying behaviour, he seems to follow rather than lead and he produces no controlling acts. Donald does, however, produce an enhanced level of consideration or adaptiveness in interaction with Sandy. He tones down the negative aspects of his social behaviour but does not step up the good. Sandy's behaviour to Donald is no more friendly than that of others. Indeed, under both systems of social acts, Donald gives to Sandy a relatively higher level of social acts than he receives - a lack of enthusiasm from Sandy is apparent. It is therefore concluded that Donald has an unreciprocated best friendship with Sandy.

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